



CERTIFICATION TEST REPORT

Report Number. : 13019133-E1V3

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A2282

FCC ID : BCGA2282

EUT Description : NETWORK ADAPTER

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:

April 28, 2020

Prepared by:

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NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	4/13/2020	Initial Issue	Tony Li
V2	4/24/2020	Address TCB's Questions	Chin Pang
V3	4/28/2020	Retest BLE 2M to frequency range 2404-2478	Chin Pang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: Network Adapter

MODEL: A2282

SERIAL NUMBER: F0TC301FPQD7 (CONDUCTED)
F0TC3000PQD7 (RADIATED)

DATE TESTED: 01/23/2020 – 2/04/2020 & 4/27-28/2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:



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Consumer Technology Division
UL Verification Services Inc.

Prepared By:



Tony Li
Test Engineer
Consumer Technology Division
UL Verification Services Inc.

2. TEST RESULTS SUMMARY

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
See Comment	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	6dB BW	Complies	None.
15.247 (b) (3)	Output Power	Complies	None.
See Comment	Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	PSD	Complies	None.
15.247 (d)	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	Radiated Emissions	Complies	None.
15.207	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd
<input type="checkbox"/> Chamber A (IC:2324B-1)	<input type="checkbox"/> Chamber D (IC:22541-1)	<input type="checkbox"/> Chamber I (IC: 2324A-5)
<input checked="" type="checkbox"/> Chamber B (IC:2324B-2)	<input checked="" type="checkbox"/> Chamber E (IC:22541-2)	<input type="checkbox"/> Chamber J (IC: 2324A-6)
<input type="checkbox"/> Chamber C (IC:2324B-3)	<input type="checkbox"/> Chamber F (IC:22541-3)	<input type="checkbox"/> Chamber K (IC: 2324A-1)
	<input type="checkbox"/> Chamber G (IC:22541-4)	<input type="checkbox"/> Chamber L (IC: 2324A-3)
	<input type="checkbox"/> Chamber H (IC:22541-5)	<input type="checkbox"/> Chamber M (IC: 2324A-2)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U _{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.39 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.07 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a Network Adapter. It has an integral battery, two Gigabit Ethernet port, lightning connector and antenna. The device supports IEEE 802.11b/g/n radio, Bluetooth radio, and GNSS. Network Adapter comes with 32 GB memory storage and 1GB RAM.

Note: Only BLE (1M/2M) was turn on, other option on Bluetooth, HDR4/HDR8 were turn off.

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BLE 1M	7.26	5.32
2404 - 2478	BLE 2M	7.24	5.30

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PCB/Omni directional antenna.

Frequency Range (GHz)	Antenna (dBi)
2400-2484	3

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 1A610

6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The fundamental and emission spurious of the EUT were investigated in three orthogonal orientations X,Y,Z with EUT connected to both Laptop and Switch/Router via ethernet cable and EUT standalone configuration.

For above 1GHz, it was determined that Y (Landscape) orientation was the worst-case orientation with EUT standalone; therefore, all final radiated testing was performed with the EUT in Y (Landscape) orientation.

For below 1GHz, it was determined that Y (Landscape) orientation was worst-case orientation with EUT connecting to both Laptop and Switch/Router via ethernet cable

Radiated emissions below 30MHz, below 1GHz, 18-26GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario

For below 30MHz and 1GHz tests EUT was connected to AC power adapter and support equipment with ethernet cable connected as the worst case; and for above 1GHz, the worst-case configuration was EUT only. There were no emissions found below 30MHz within 20dB of the limit. For AC line conducted emission was investigated with AC power adapter and with laptop.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Apple	MacBook Pro	C02SG8L0G8WP	DoC
Laptop AC/DC adapter	Apple	A1435	C046042GFYFG6HKAY	NA
EUT AC Adapter	Apple	A1385	D29325SM03XDHLHC9	NA
8 Port Gigabit Switch	Netgear	GS108v3	2162993A02E62	DoC
AC Adapter	Netgear	T012LF1209	929038795	DoC

I/O CABLES (Conducted)

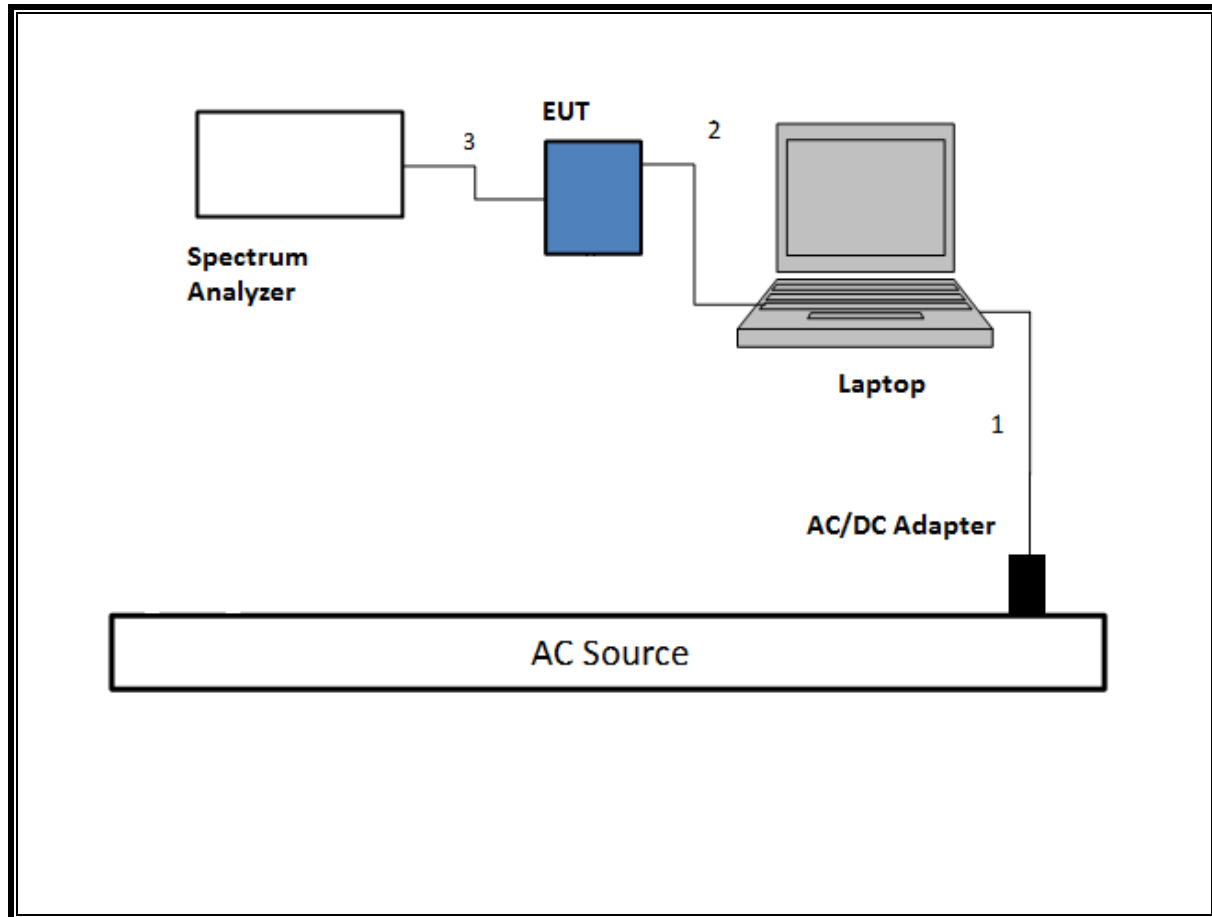
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-Shielded	2	N/A
2	USB	1	USB-C	Shielded	1	N/A
3	Antenna	1	SMA	Un-Shielded	0.2	To spectrum Analyzer

I/O CABLES (BELOW 1GHz AND AC POWER LINE TEST WITH ADAPTER AND LAPTOP)

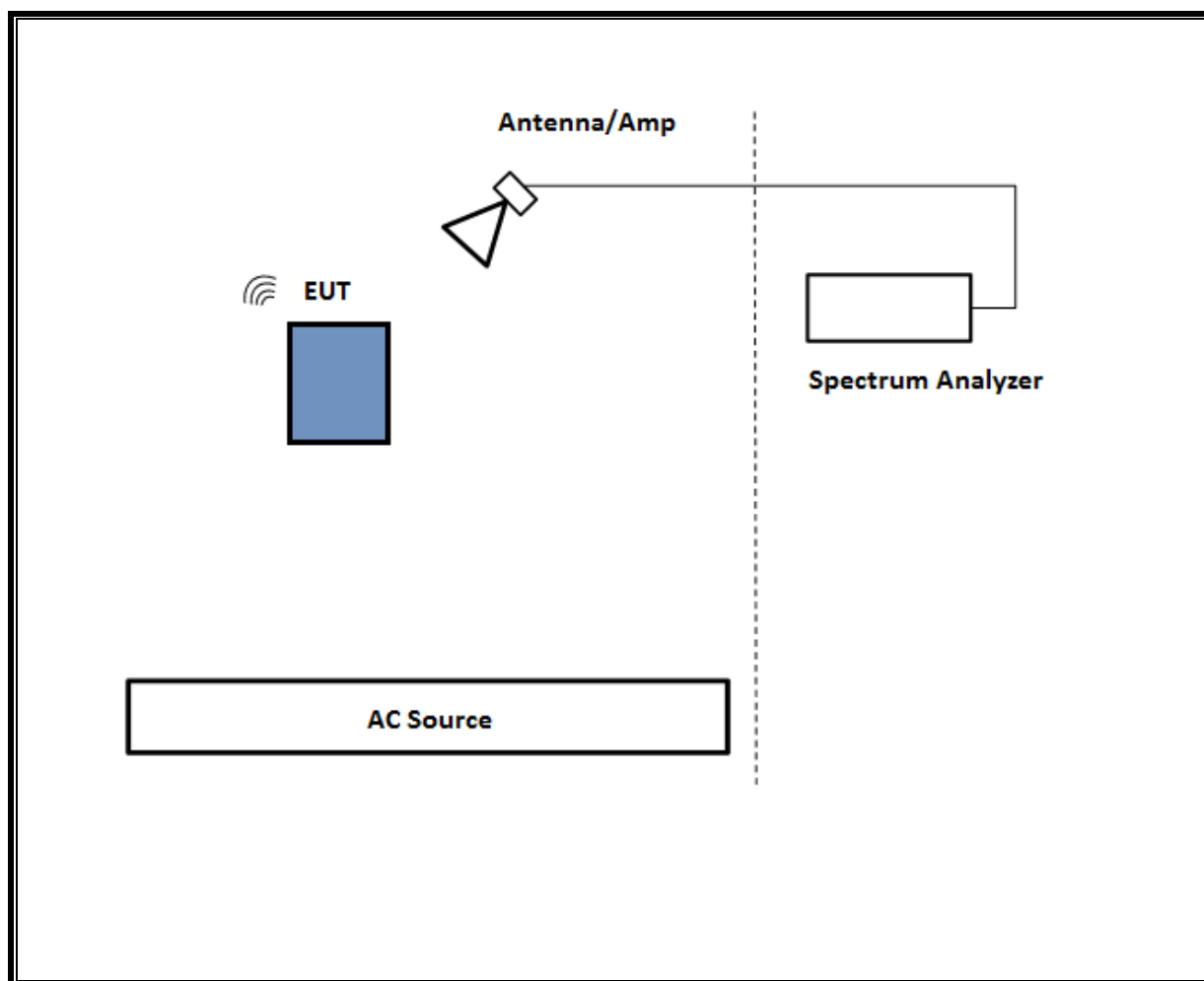
I/O Cable List						
Cable No	Port	# of identical	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	3	AC	Un-shielded	2	N/A
2	USB	1	USB-C	Un-shielded	1	N/A
3	Ethernet	2	RJ45	Un-shielded	2	N/A

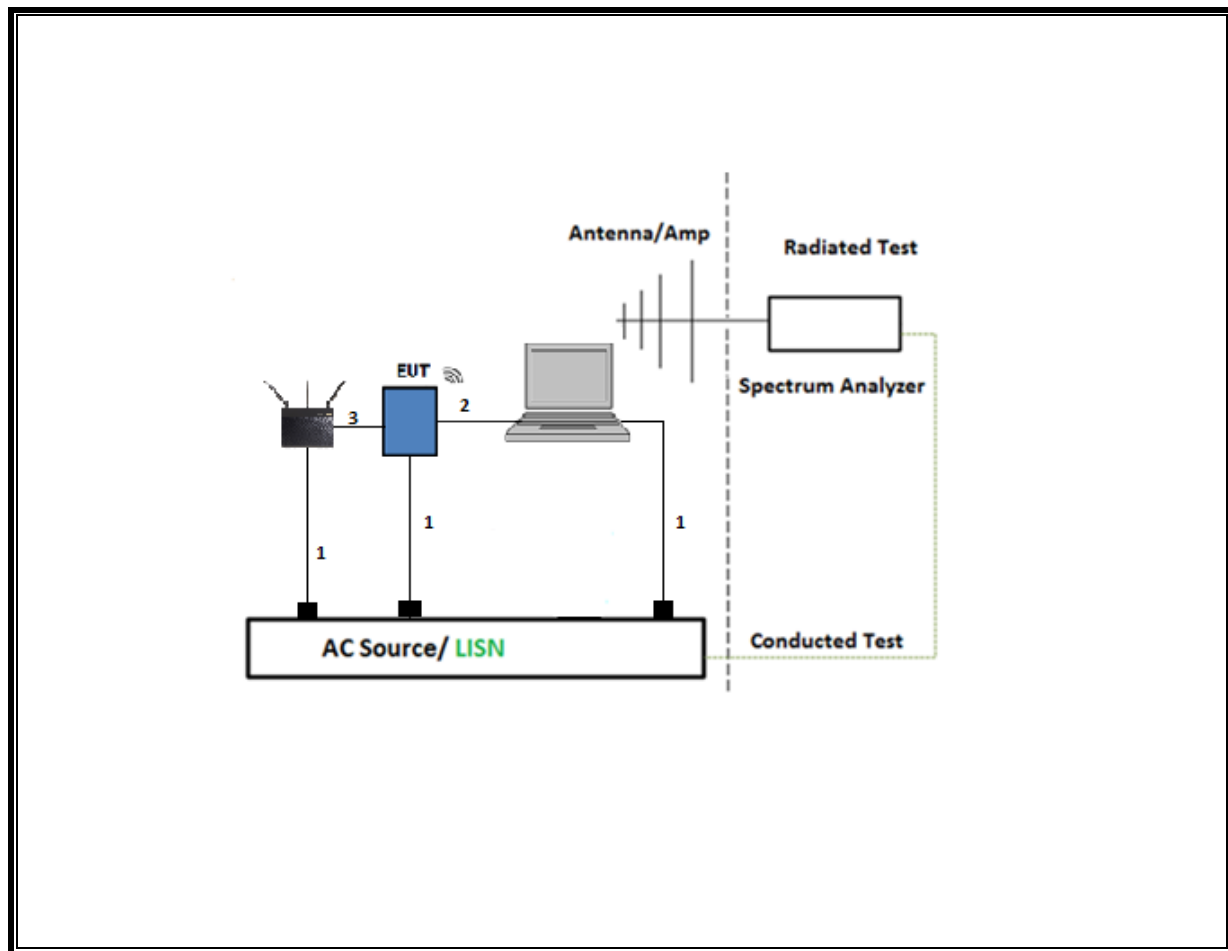
TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR CONDUCTED TESTS

SETUP DIAGRAM FOR RADIATED TESTS ABOVE 1 GHz



SETUP DIAGRAM FOR BELOW 1GHz and AC LINE CONDUCTED TEST

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Last Cal	Cal Due
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T339	01/21/2020	01/21/2021
*Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE0180176	04/03/2019	04/03/2020
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	T408	08/23/2019	08/23/2020
Antenna, Double Ridge Guide Horn Antenna 700MHz to 18GHz	A.H. SYSTEMS, INC.	SAS-571	PRE0194893	05/16/2019	05/16/2020
Amplifier, 1-18GHz	Miteq Inc.	AFS42-00101800-25-S-42	T931	05/11/2019	05/11/2020
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T712	03/09/2020	03/09/2021
Amplifier, 1 to 18GHz, 35dB	AMPLICAL	AMP1G18-35	138301	01/14/2020	01/14/2021
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc.	N9030A	T1466	01/23/2020	01/23/2021
*Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T119	03/22/2019	03/22/2020
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T740	07/31/2019	07/31/2020
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	T447	08/13/2019	08/13/2020
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	03/23/2019	03/23/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T340	01/22/2020	01/22/2021
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T1616	10/28/2019	10/28/2020
*Power Meter, P-series single channel	Keysight	N1911A	T1268	01/31/2019	01/31/2020
*Power Sensor	Keysight	N1921A	T1225	03/01/2019	03/01/2020
Power Meter, P-series single channel	Keysight	N1911A	PRE0177682	01/21/2020	01/21/2021
Power Sensor	Keysight	N1921A	T1226	02/13/2020	02/13/2021

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Last Cal	Cal Due
*EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	04/10/2019	04/10/2020
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2019	10/27/2020
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	T1310	01/23/2020	01/23/2021
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, Mar 6, 2020		
Conducted Software	UL	UL EMC	2020.2.26		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, February 21, 2020		

*Testing was performed after Calibration was completed.

8. MEASUREMENT METHOD

On Time and Duty Cycle: ANSI C63.10-2013 Section 11.6

6 dB BW: ANSI C63.10 Subclause -11.8.1 RBW \geq DTS BW

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Measurement using gated average power Meter

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1

Conducted emissions in restricted frequency bands: ANSI C63.10 Subclause -11.12.2

Band-edge: ANSI C63.10 Subclause -11.13.3.2 Integration method -Peak detection

Band-edge: ANSI C63.10 Subclause -11.13.3.3 Integration method -Trace averaging with continuous transmission at full power

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

9.2. 99% BANDWIDTH

LIMITS

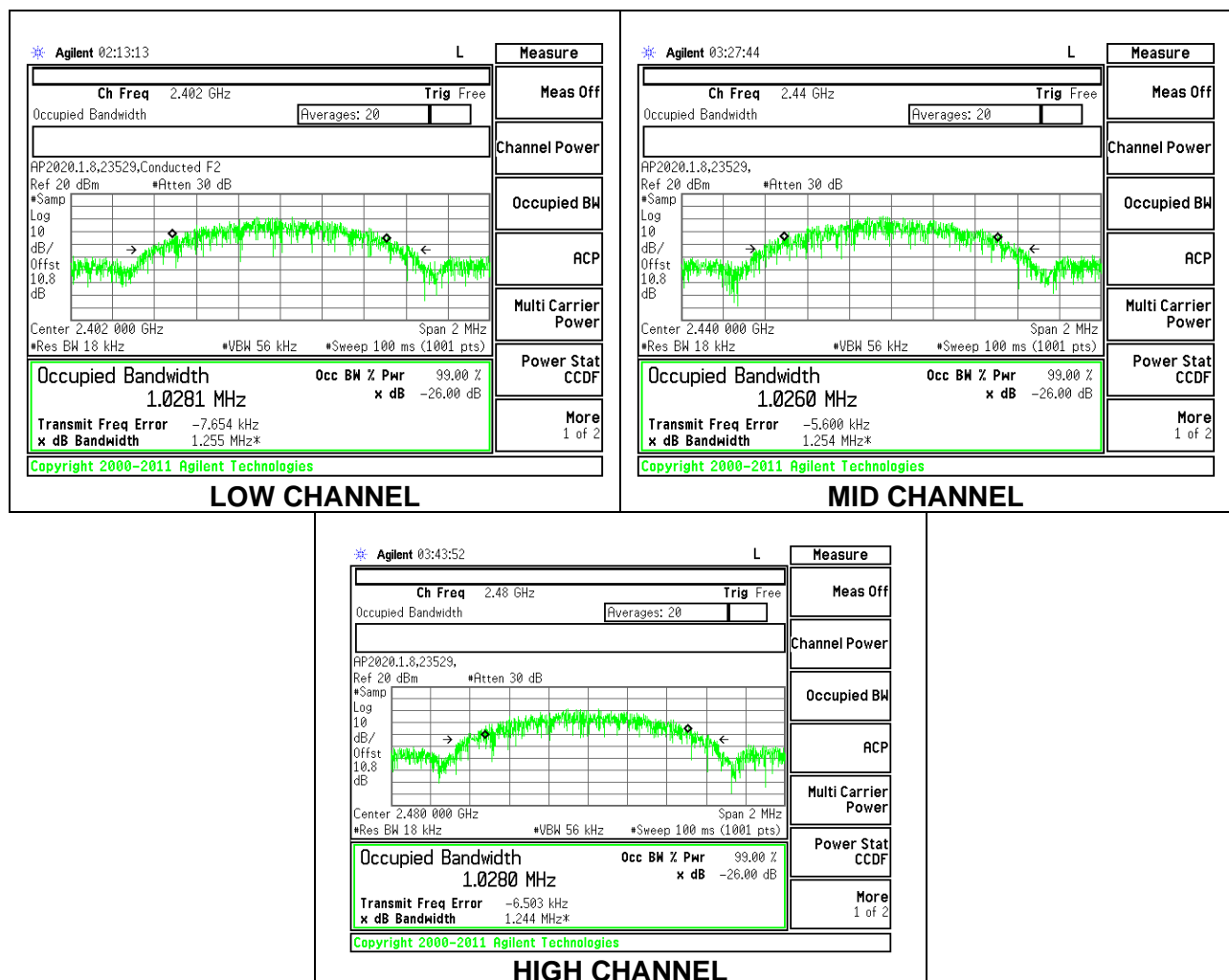
None; for reporting purposes only.

RESULTS

ID:	23529	Date:	01/23/2020
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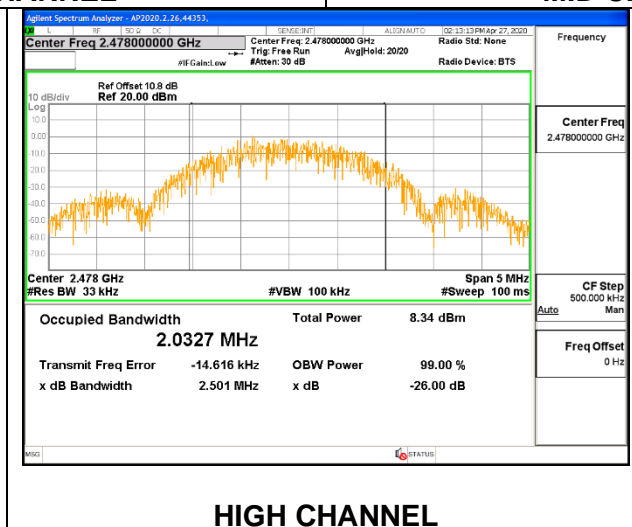
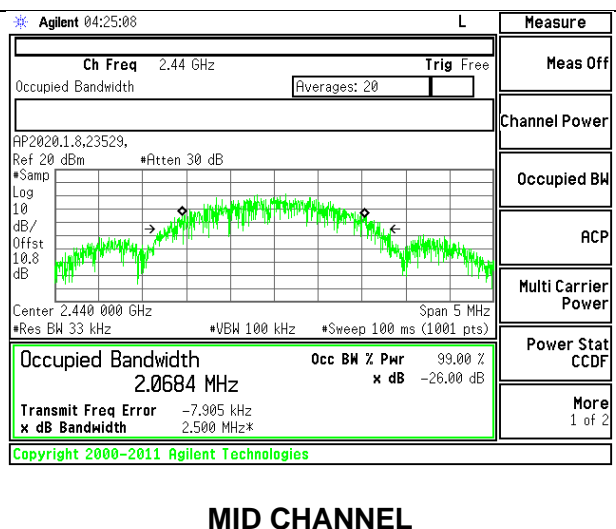
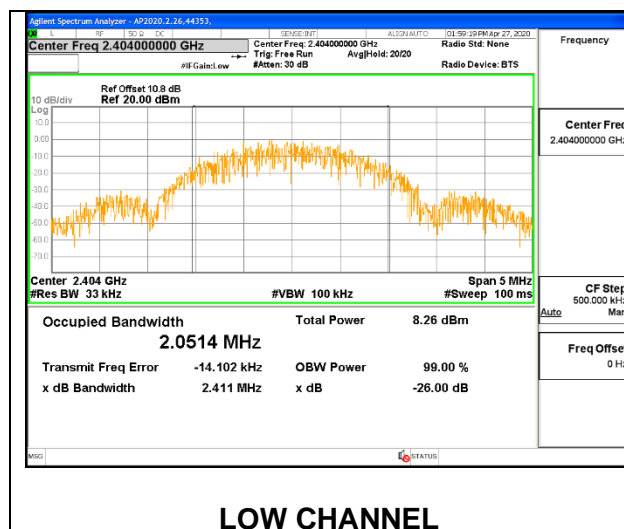
9.2.1. BLE (1Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0281
Middle	2440	1.0260
High	2480	1.0280



9.2.2. BLE (2Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2404	2.0514
Middle	2440	2.0684
High	2478	2.0327



9.3. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

RSS-247 5.2 (a)

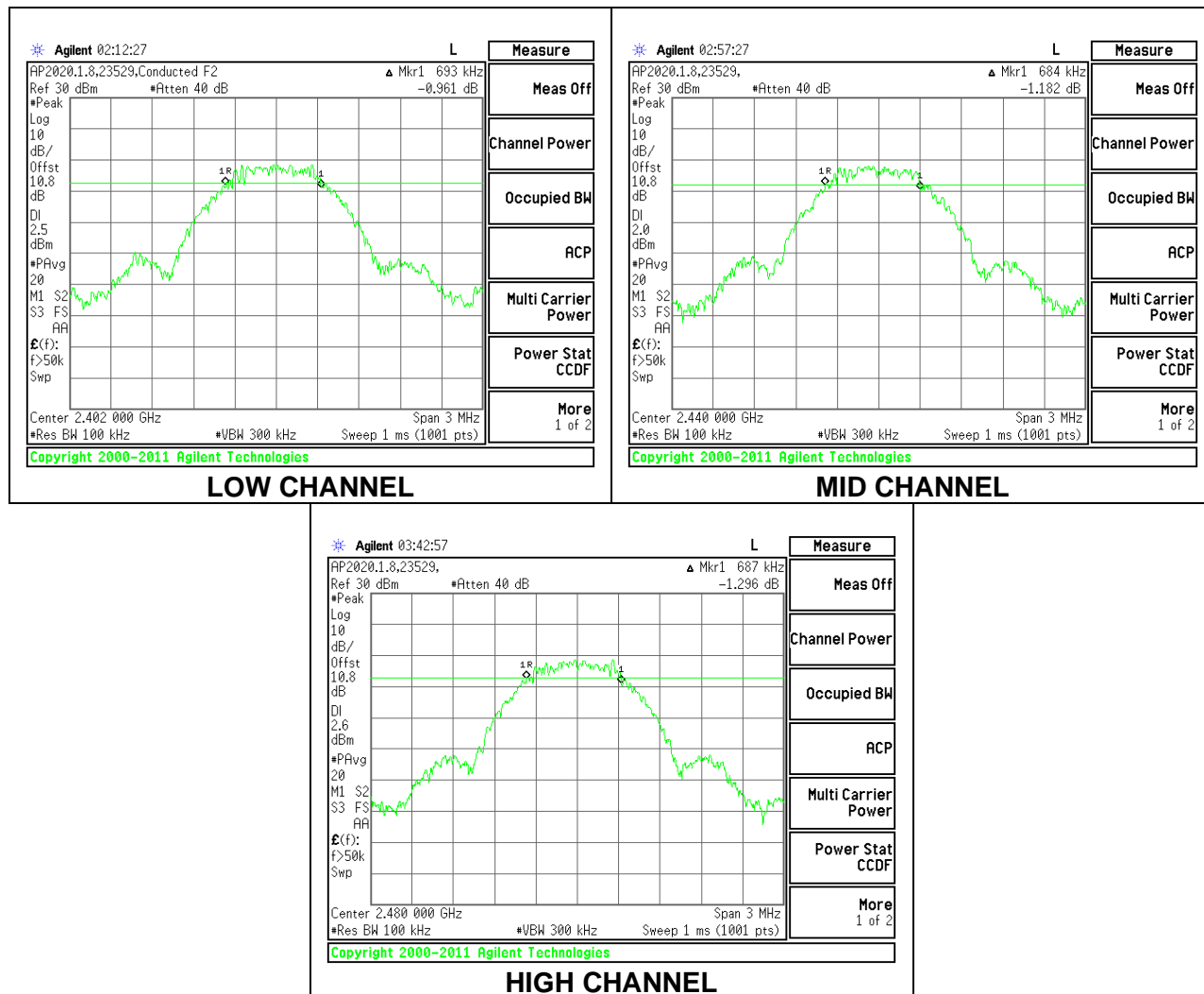
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

ID:	23529	Date:	01/23/2020
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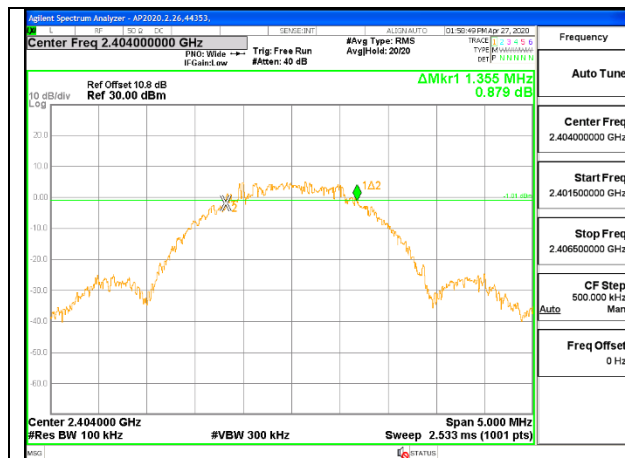
9.3.1. BLE (1Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.693	0.5
Middle	2440	0.684	0.5
High	2480	0.687	0.5

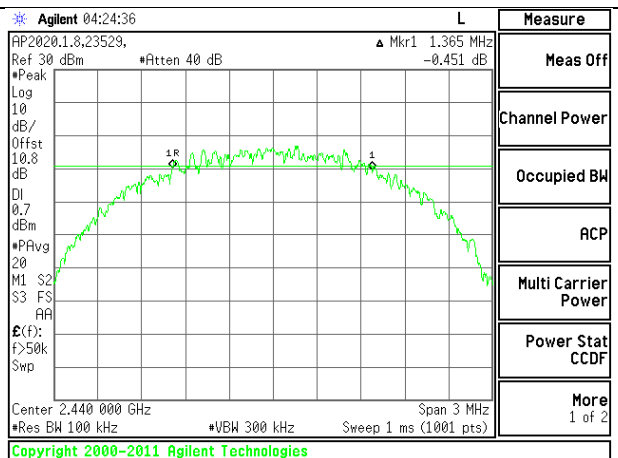


9.3.2. BLE (2Mbps)

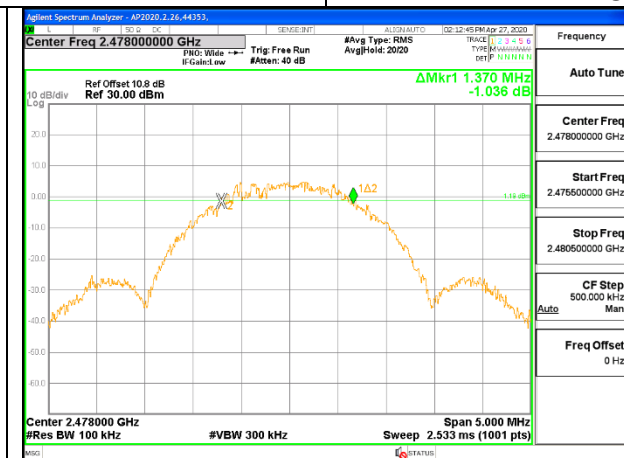
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2404	1.355	0.5
Middle	2440	1.365	0.5
High	2478	1.370	0.5



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

9.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

RSS-247 5.4 (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a power meter with wideband power sensor.

The cable assembly insertion loss of 10.8 dB (including 10 dB pad and 0.8 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power.

RESULTS

9.4.1. BLE (1Mbps)

Tested By:	44366
Date:	1/24/2020

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	7.26	30	-22.74
Middle	2440	7.21	30	-22.79
High	2480	7.25	30	-22.75

9.4.2. BLE (2Mbps)

Tested By:	44353
Date:	4/27/2020

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2404	7.24	30	-22.76
Middle	2440	7.20	30	-22.80
High	2478	7.23	30	-22.77

9.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.8 dB (including 10 dB pad and 0.8 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power.

RESULTS

9.5.1. BLE (1Mbps)

Tested By:	44366
Date:	1/24/2020

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	6.91
Middle	2440	6.87
High	2480	6.90

9.5.2. BLE (2Mbps)

Tested By:	44353
Date:	4/27/2020

Channel	Frequency (MHz)	AV power (dBm)
Low	2404	6.90
Middle	2440	6.85
High	2478	6.88

9.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

RSS-247 (5.2) (b)

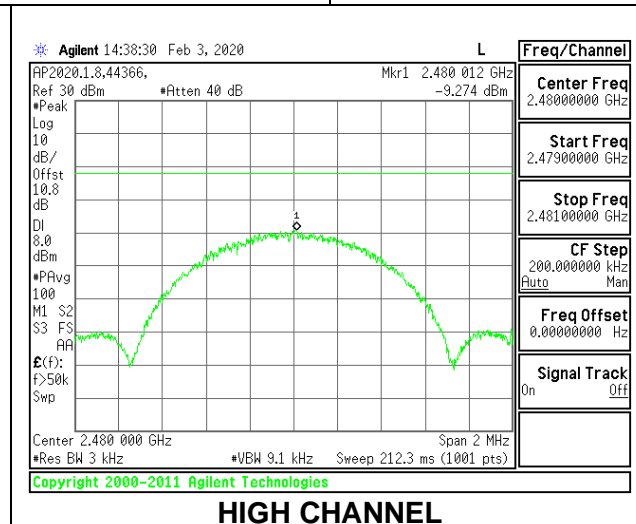
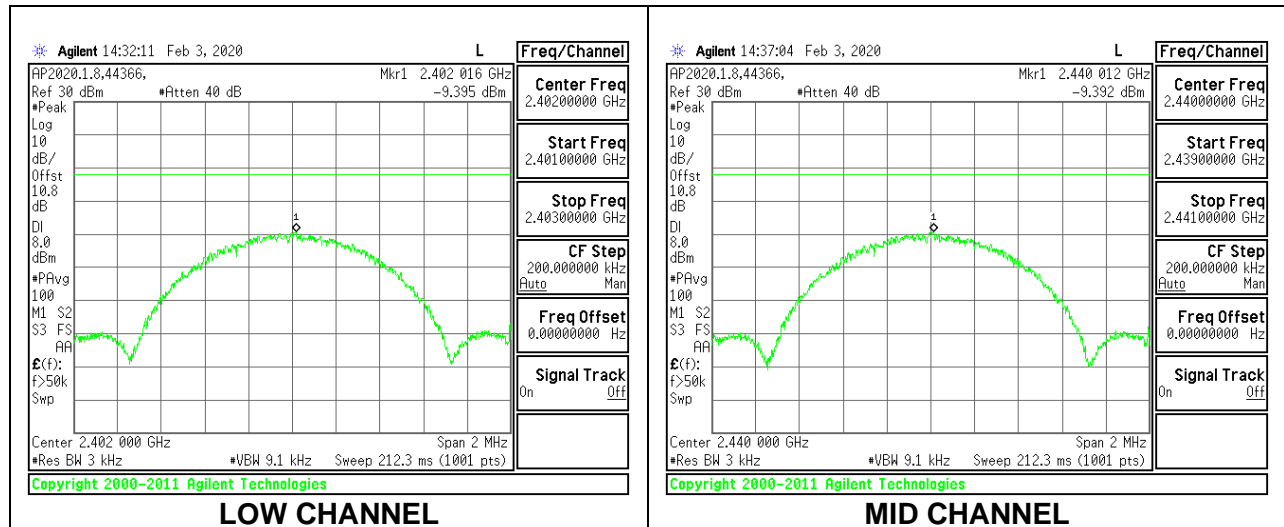
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

ID:	23529	Date:	01/23/2020
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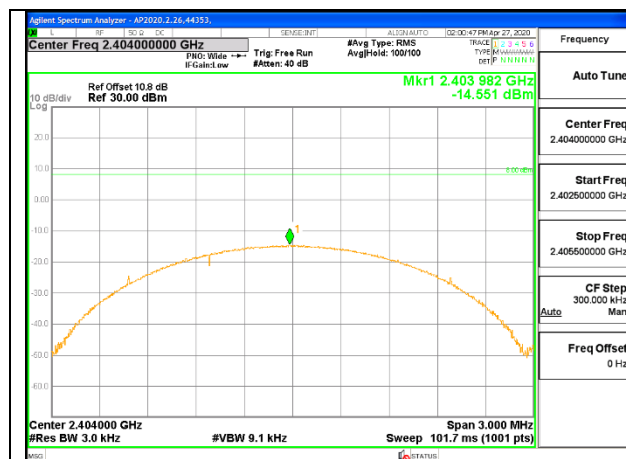
9.6.1. BLE (1Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-9.395	8	-17.40
Middle	2440	-9.392	8	-17.39
High	2480	-9.274	8	-17.27

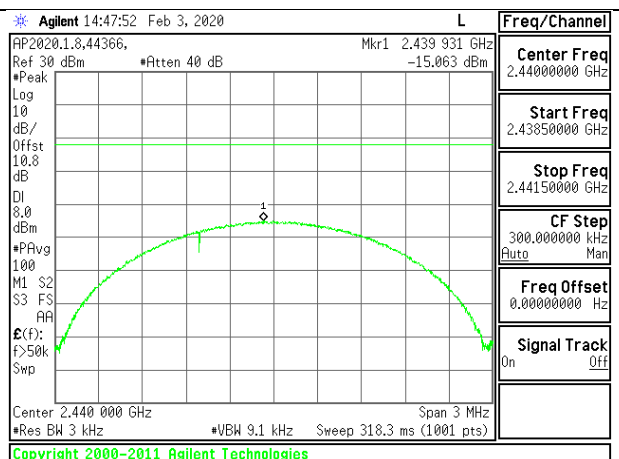


9.6.2. BLE (2Mbps)

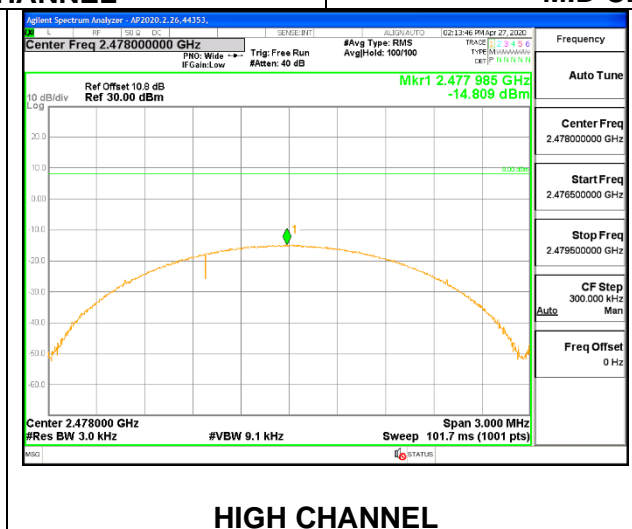
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2404	-14.551	8	-22.55
Middle	2440	-15.063	8	-23.06
High	2478	-14.809	8	-22.81



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

9.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

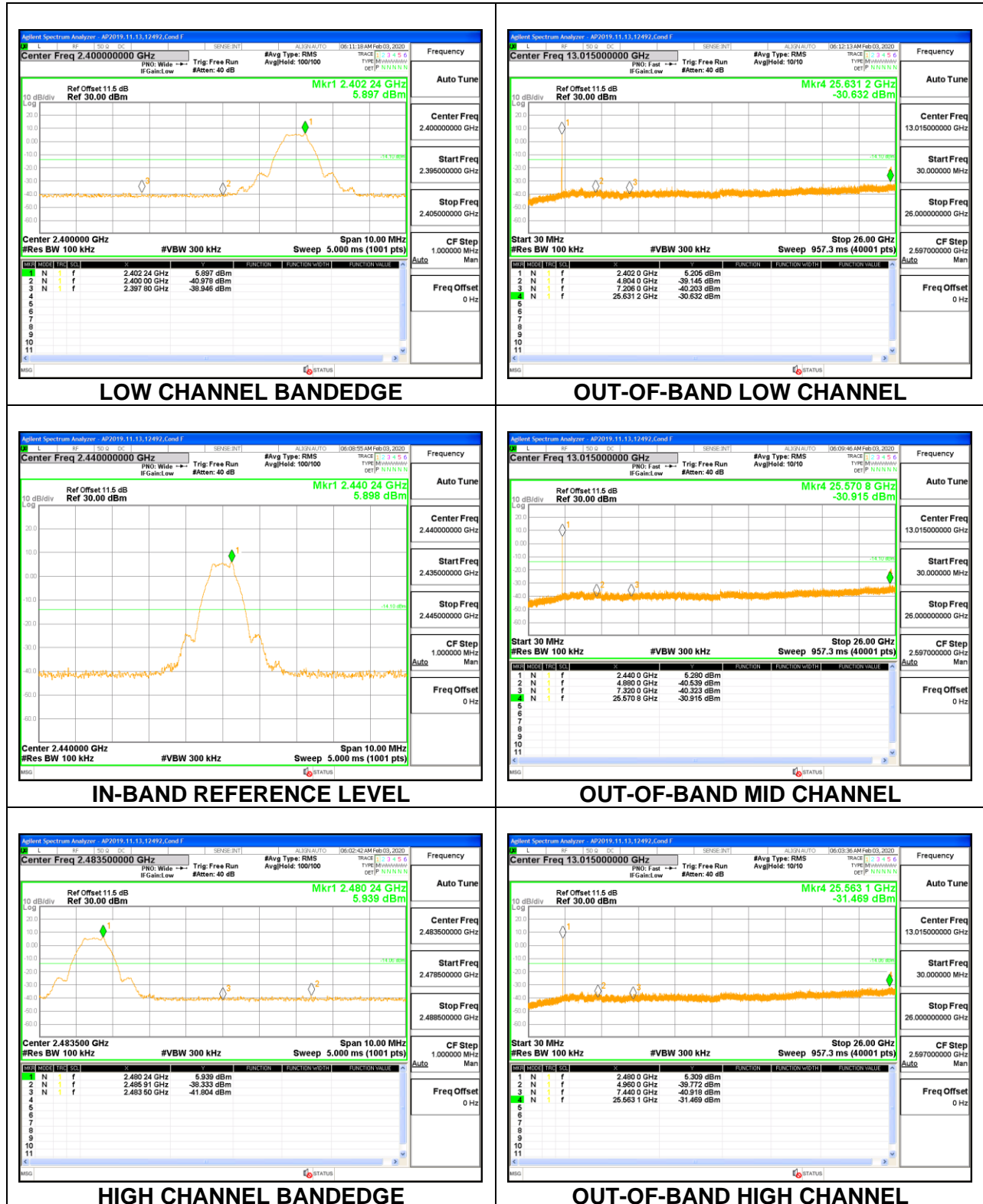
FCC §15.247 (d)

RSS-247 5.5

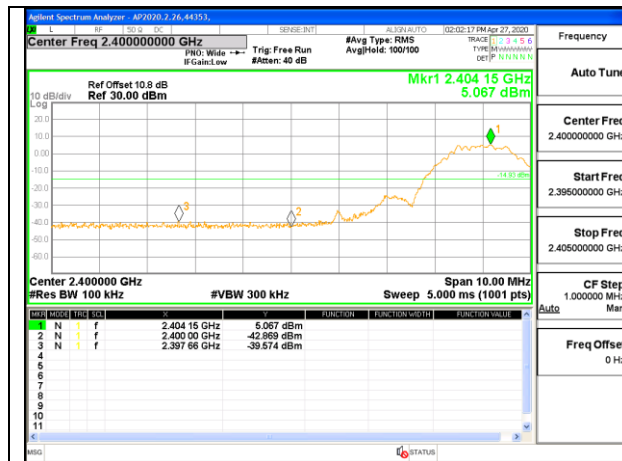
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS

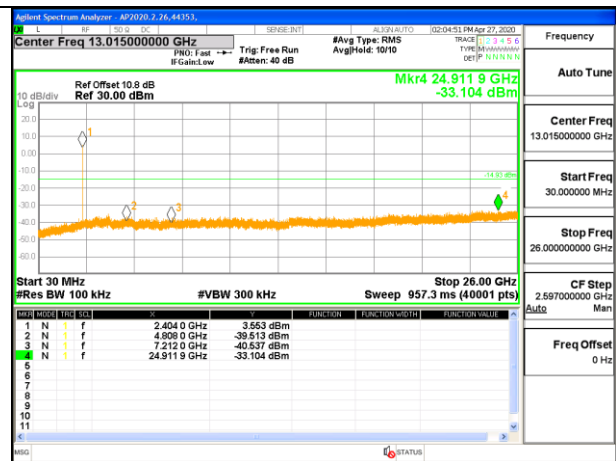
9.7.1. BLE (1Mbps)



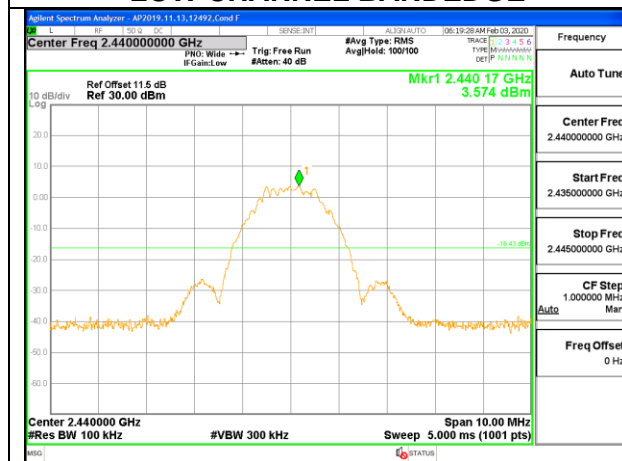
9.7.2. BLE (2Mbps)



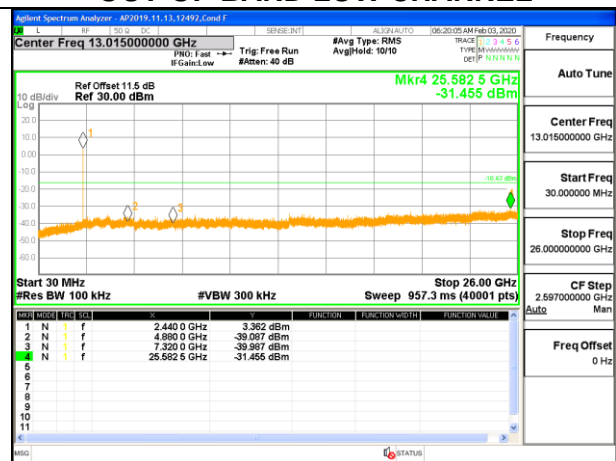
LOW CHANNEL BANDEDGE



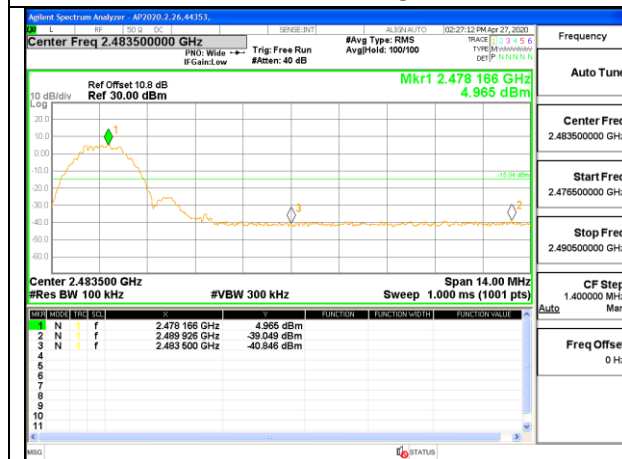
OUT-OF-BAND LOW CHANNEL



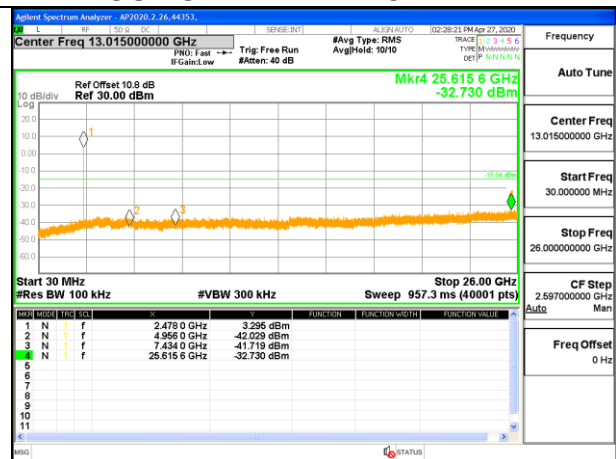
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel)

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

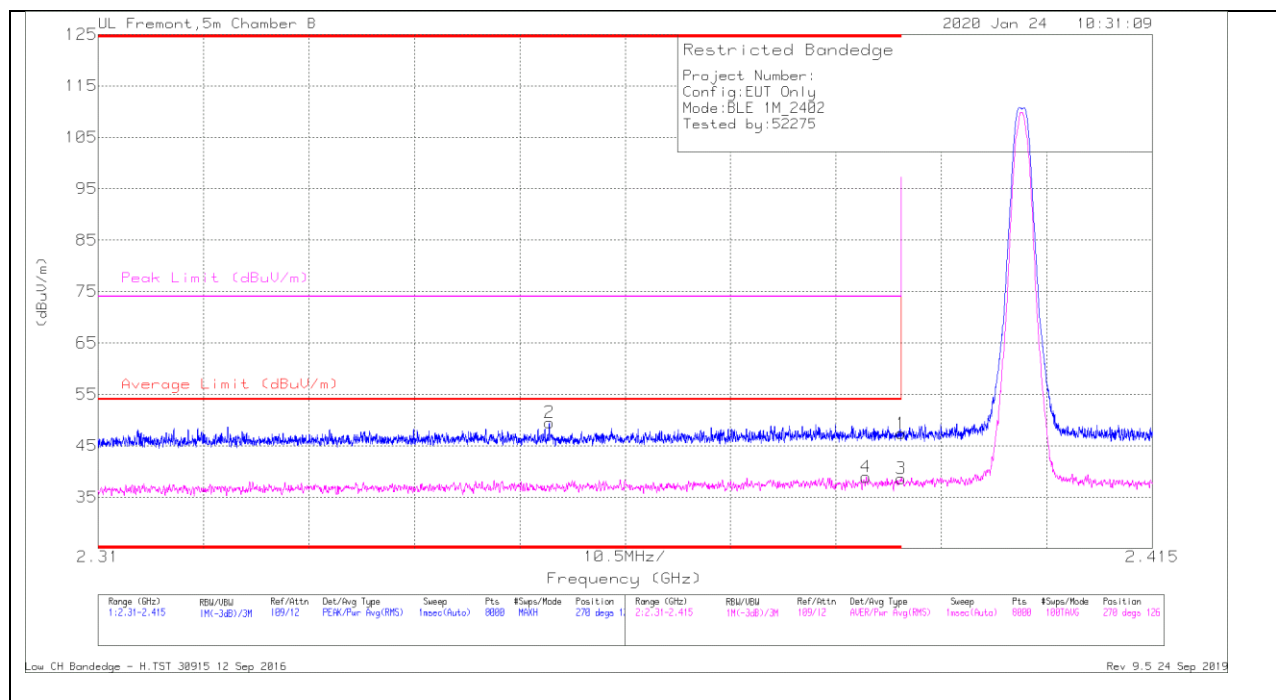
OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. BLE (1Mbps)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



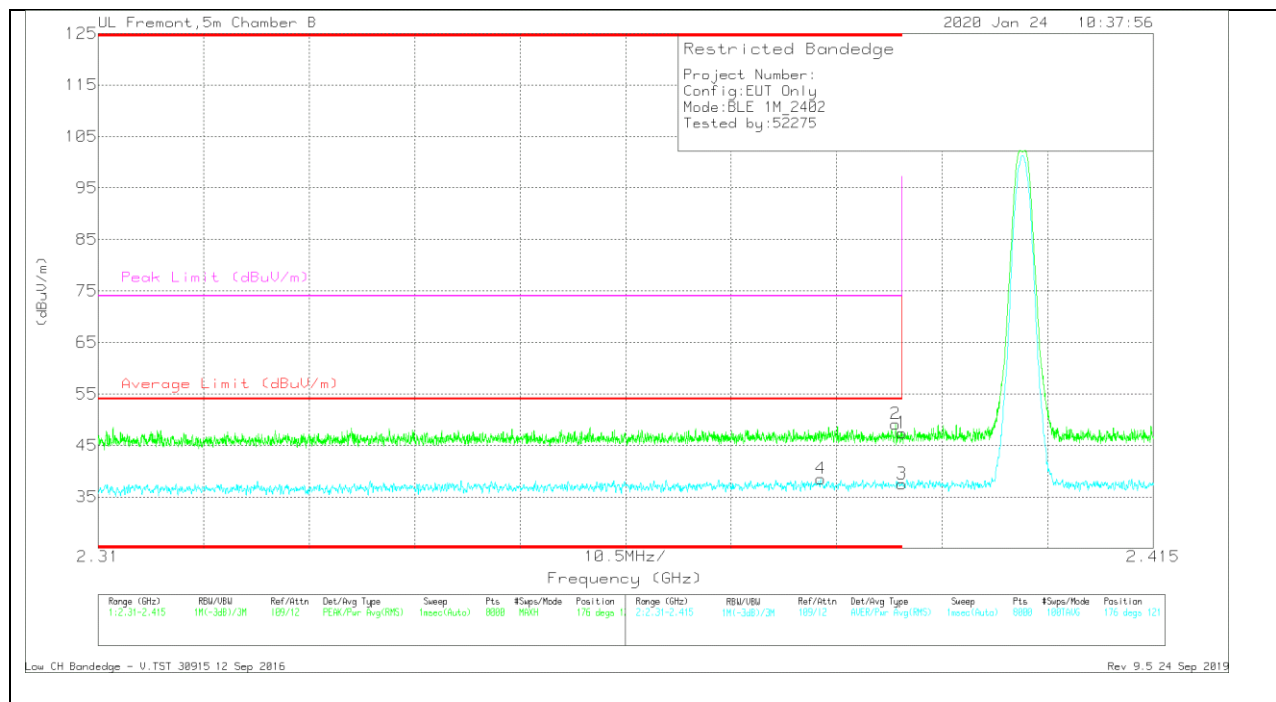
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE01 94893 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	35.96	Pk	30.3	-18.9	47.36	-	-	74	-26.64	270	126	H
2	* 2.35495	38.41	Pk	30.1	-19	49.51	-	-	74	-24.49	270	126	H
3	* 2.39	27.24	RMS	30.3	-18.9	38.64	54	-15.36	-	-	270	126	H
4	* 2.3865	27.62	RMS	30.2	-18.9	38.92	54	-15.08	-	-	270	126	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT

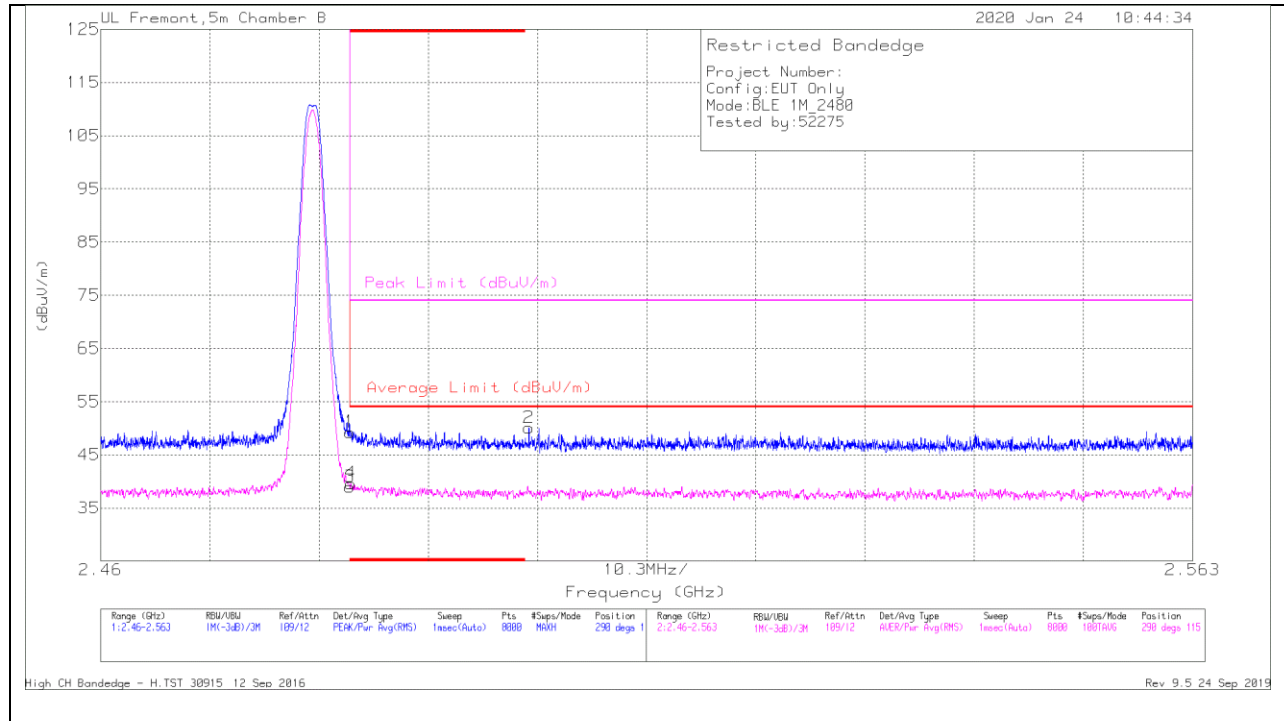


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE01 94893 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.04	Pk	30.3	-18.9	47.44	-	-	74	-26.56	176	121	V
2	* 2.38935	37.76	Pk	30.3	-18.9	49.16	-	-	74	-24.84	176	121	V
3	* 2.39	26.15	RMS	30.3	-18.9	37.55	54	-16.45	-	-	176	121	V
4	* 2.38191	27.14	RMS	30.2	-18.8	38.54	54	-15.46	-	-	176	121	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

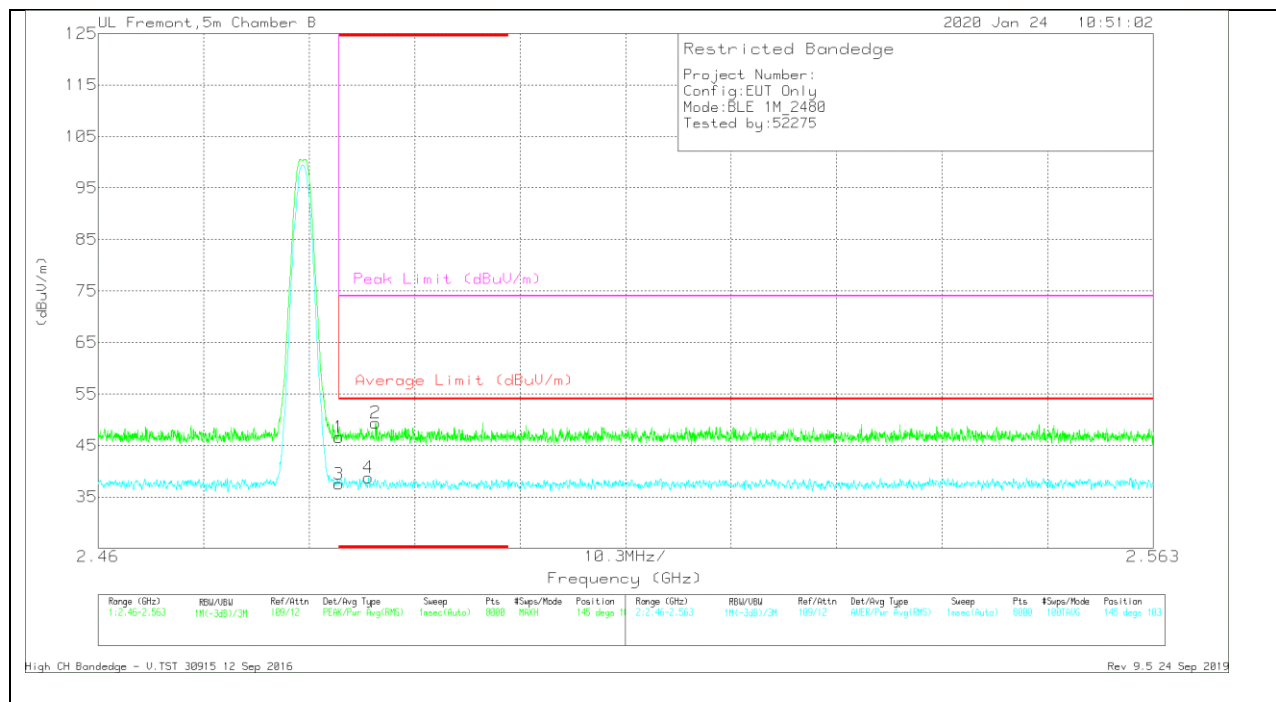
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE01 94893 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	37.97	Pk	30.2	-18.9	49.27	-	-	74	-24.73	290	115	H
3	* 2.4835	27.64	RMS	30.2	-18.9	38.94	54	-15.06	-	-	290	115	H
4	* 2.48359	28.32	RMS	30.2	-18.9	39.62	54	-14.38	-	-	290	115	H
2	2.5004	38.87	Pk	30.1	-18.9	50.07	-	-	74	-23.93	290	115	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE01 94893 (dB/m)	Amp/Cb I/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	35.32	Pk	30.2	-18.9	46.62	-	-	74	-27.38	145	103	V
2	* 2.48709	38.09	Pk	30.2	-18.9	49.39	-	-	74	-24.61	145	103	V
3	* 2.4835	26.17	RMS	30.2	-18.9	37.47	54	-16.53	-	-	145	103	V
4	* 2.4864	27.45	RMS	30.2	-18.9	38.75	54	-15.25	-	-	145	103	V

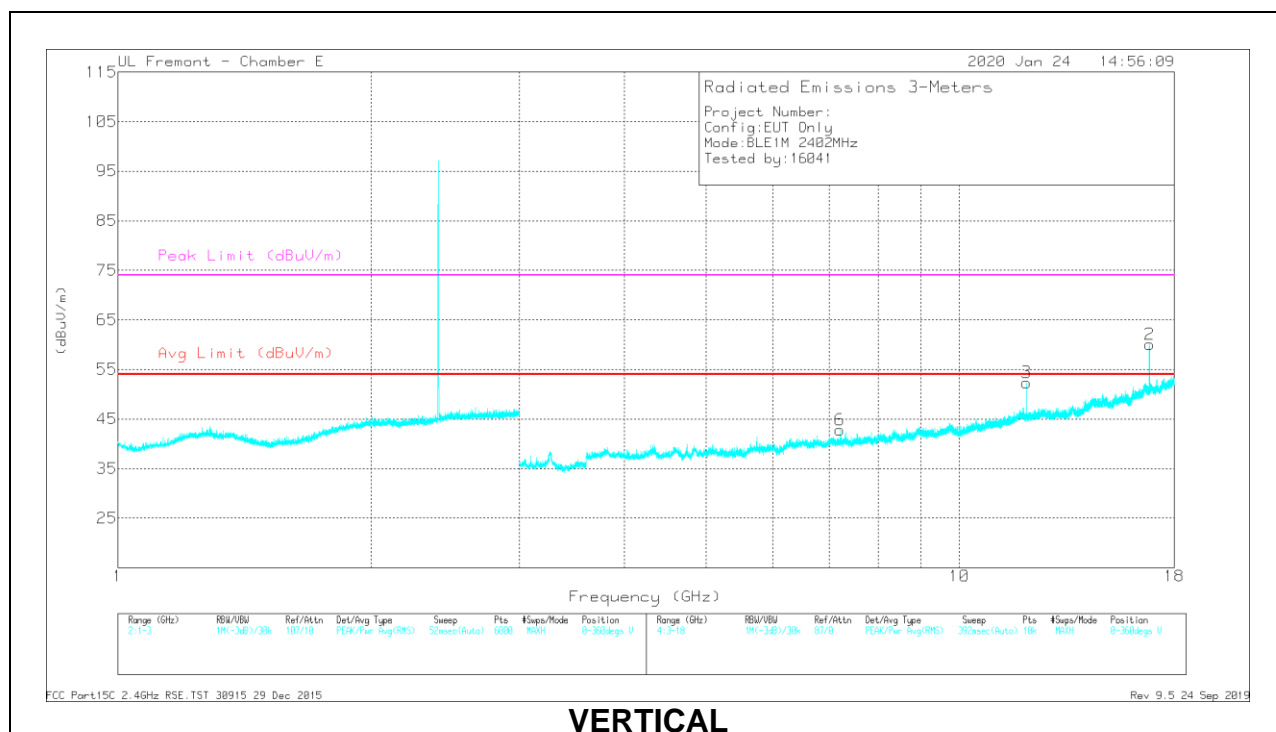
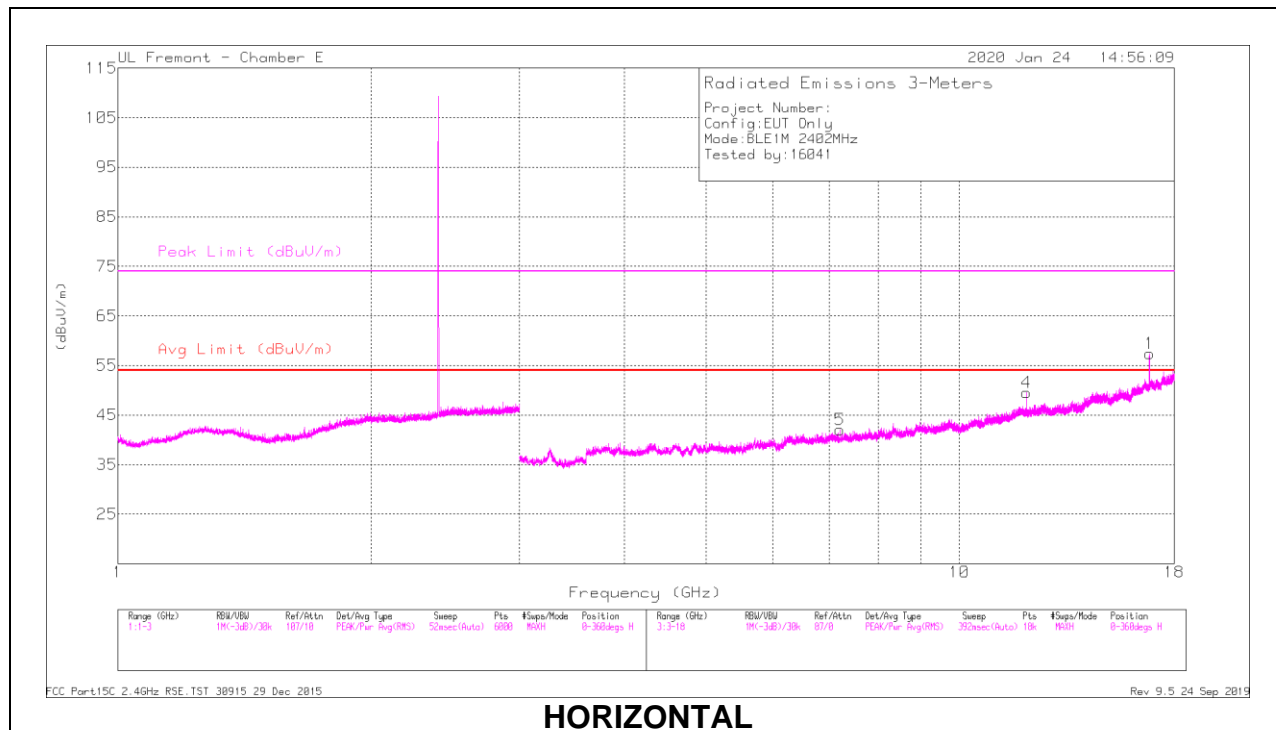
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

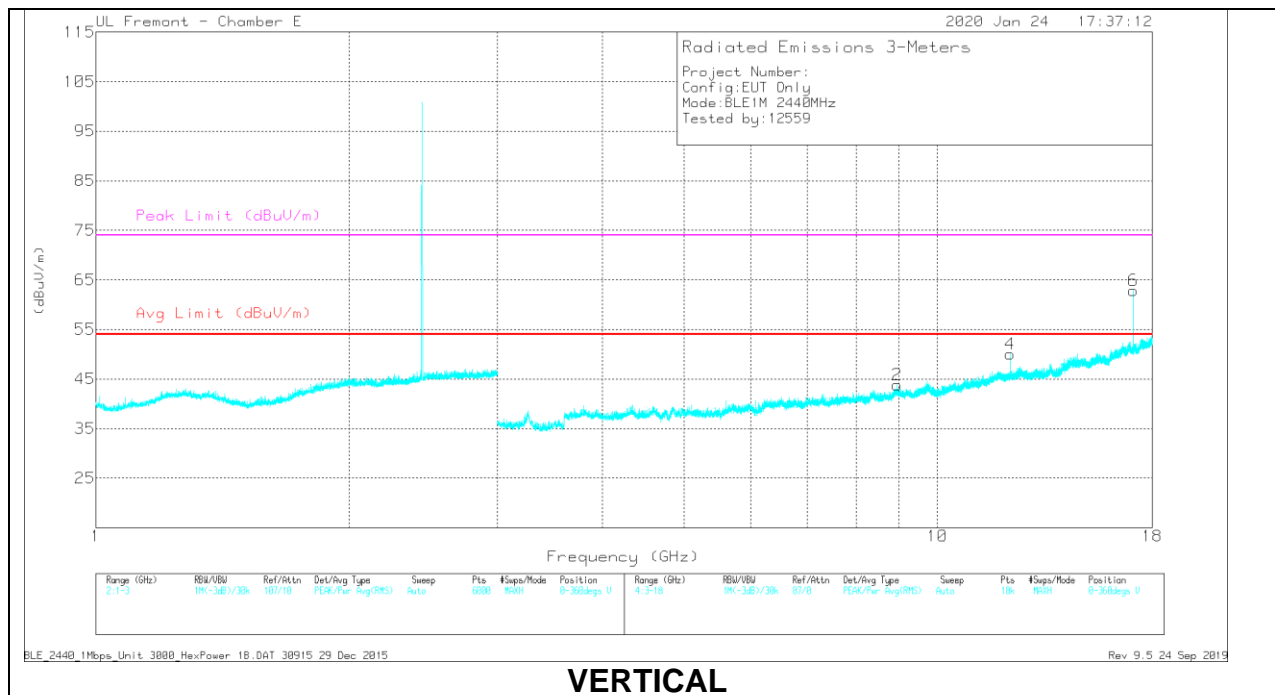
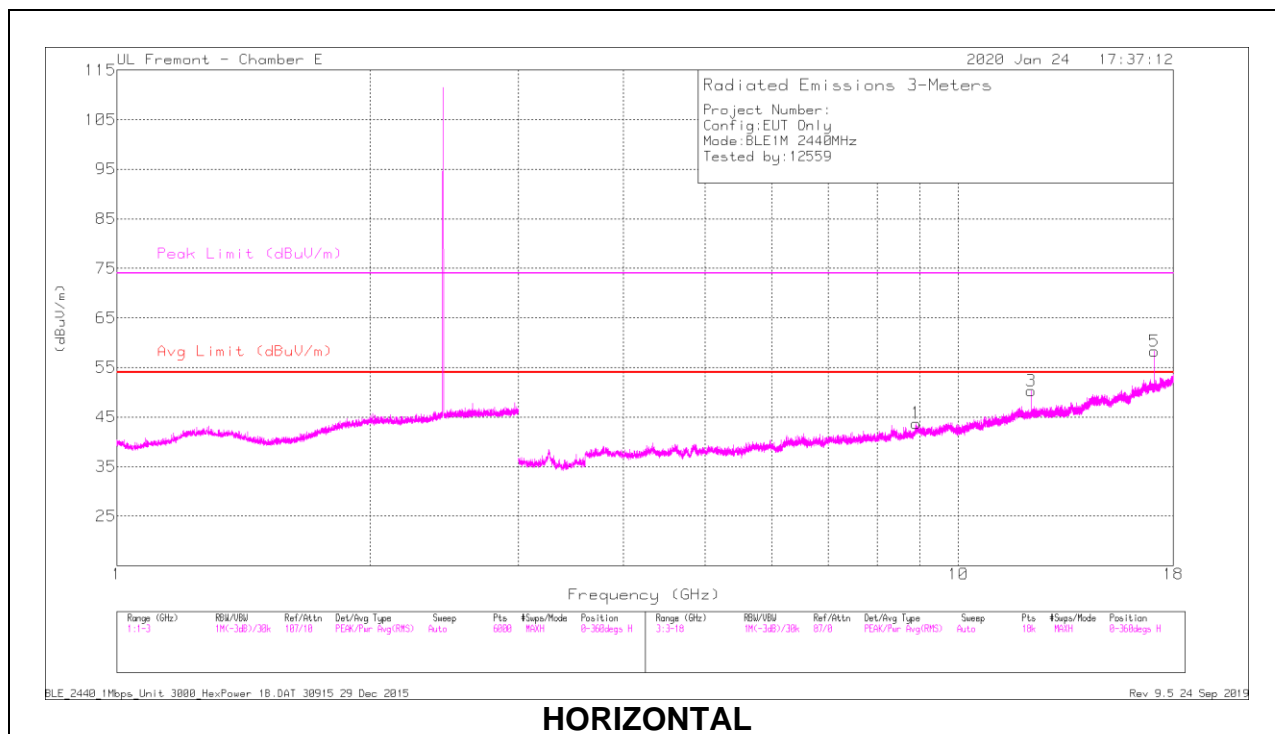
Mtrker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 12.01131	39.19	PK2	39	-21.8	56.39	-	-	74	-17.61	220	262	H
	* 12.00881	29.1	MAv1	39	-21.8	46.3	54	-7.7	-	-	220	262	H
3	* 12.01105	39.72	PK2	39	-21.8	56.92	-	-	74	-17.08	253	210	V
	* 12.0111	31	MAv1	39	-21.8	48.2	54	-5.8	-	-	253	210	V
6	7.20561	41.67	PK2	35.6	-27.6	49.67	-	-	-	-	0	225	V
5	7.20644	40.51	PK2	35.6	-27.6	48.51	-	-	-	-	164	122	H
2	16.81203	40.44	PK2	41.4	-17.9	63.94	-	-	-	-	215	192	V
1	16.8156	38.49	PK2	41.4	-17.9	61.99	-	-	-	-	252	105	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

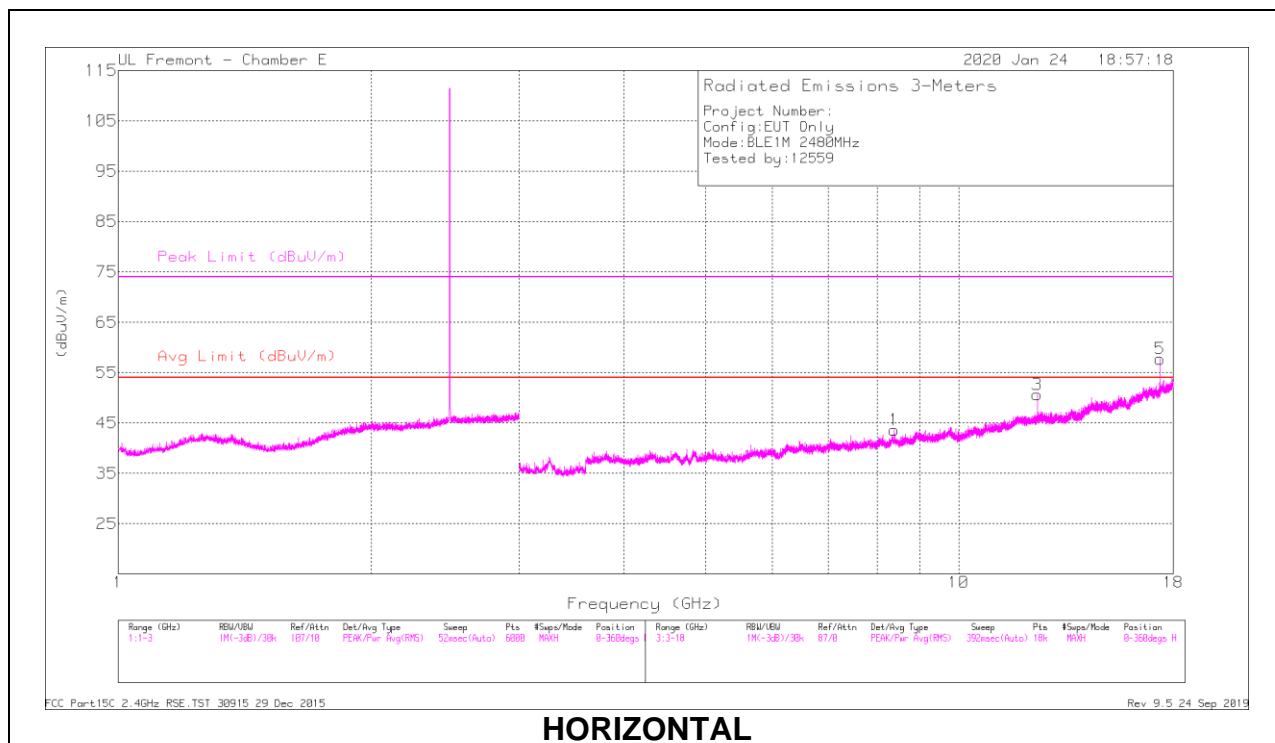
Markers	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 12.20133	36.1	PK2	39	-21.8	53.3	-	-	74	-20.7	122	105	H
	* 12.20253	24.38	MAv1	39	-21.8	41.58	54	-12.42	-	-	122	105	H
4	* 12.20105	39.66	PK2	39	-21.8	56.86	-	-	74	-17.14	167	101	V
	* 12.20101	30.21	MAv1	39	-21.8	47.41	54	-6.59	-	-	167	101	V
1	8.91342	38.51	PK2	36.1	-23.9	50.71	-	-	-	-	182	305	H
2	8.95125	37.6	PK2	36.1	-24.1	49.6	-	-	-	-	225	105	V
6	17.08133	41.6	PK2	41.3	-18.2	64.7	-	-	-	-	238	116	V
5	17.08159	40.48	PK2	41.3	-18.2	63.58	-	-	-	-	208	198	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

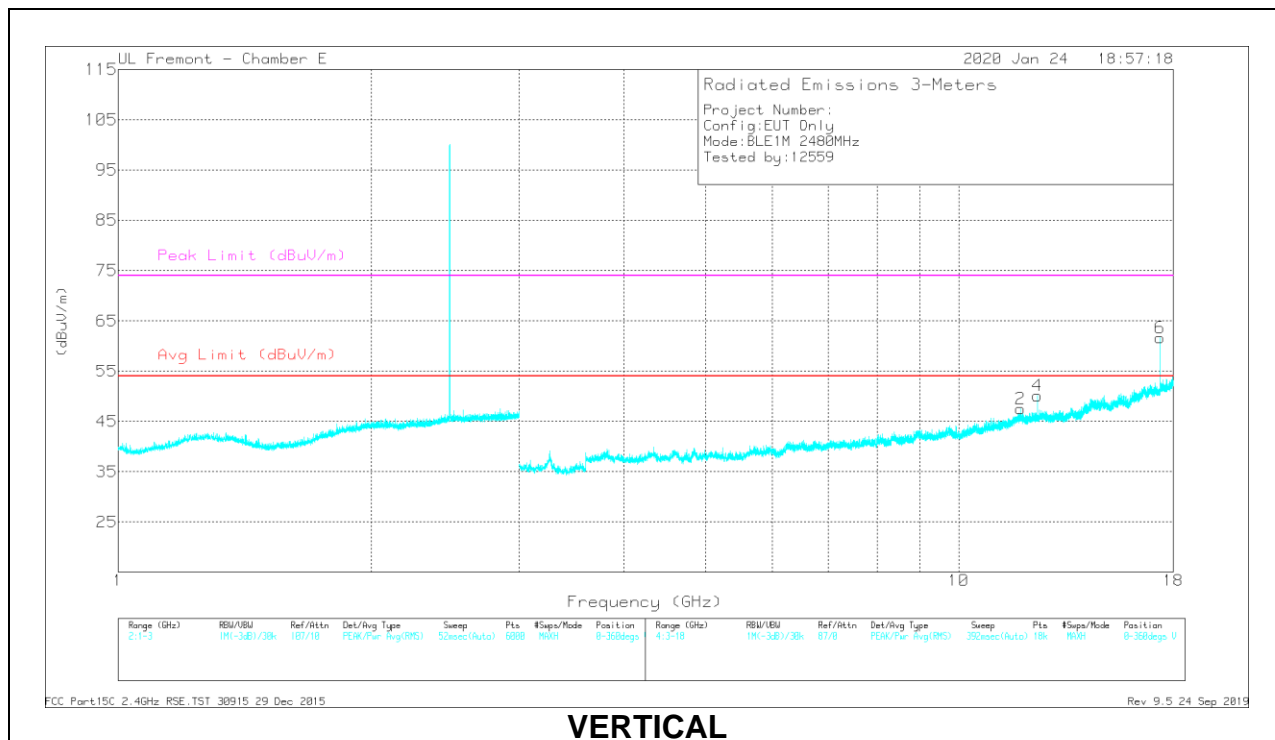
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Markers	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 8.37899	38.93	PK2	35.8	-25.4	49.33	-	-	74	-24.67	210	173	H
	* 8.37712	27.25	MAv1	35.8	-25.4	37.65	54	-16.35	-	-	210	173	H
3	* 12.39851	40.54	PK2	39	-21.8	57.74	-	-	74	-16.26	286	101	H
	* 12.39891	31.72	MAv1	39	-21.8	48.92	54	-5.08	-	-	286	101	H
2	* 11.85341	36.2	PK2	38.9	-22	53.1	-	-	74	-20.9	71	366	V
	* 11.85163	24.66	MAv1	38.9	-22	41.56	54	-12.44	-	-	71	366	V
4	* 12.4013	38.67	PK2	39	-21.8	55.87	-	-	74	-18.13	190	197	V
	* 12.40103	26.88	MAv1	39	-21.8	44.08	54	-9.92	-	-	190	197	V
5	17.35831	39.83	PK2	41.3	-17.6	63.53	-	-	-	-	114	101	H
6	17.36173	42.7	PK2	41.3	-17.6	66.4	-	-	-	-	240	117	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

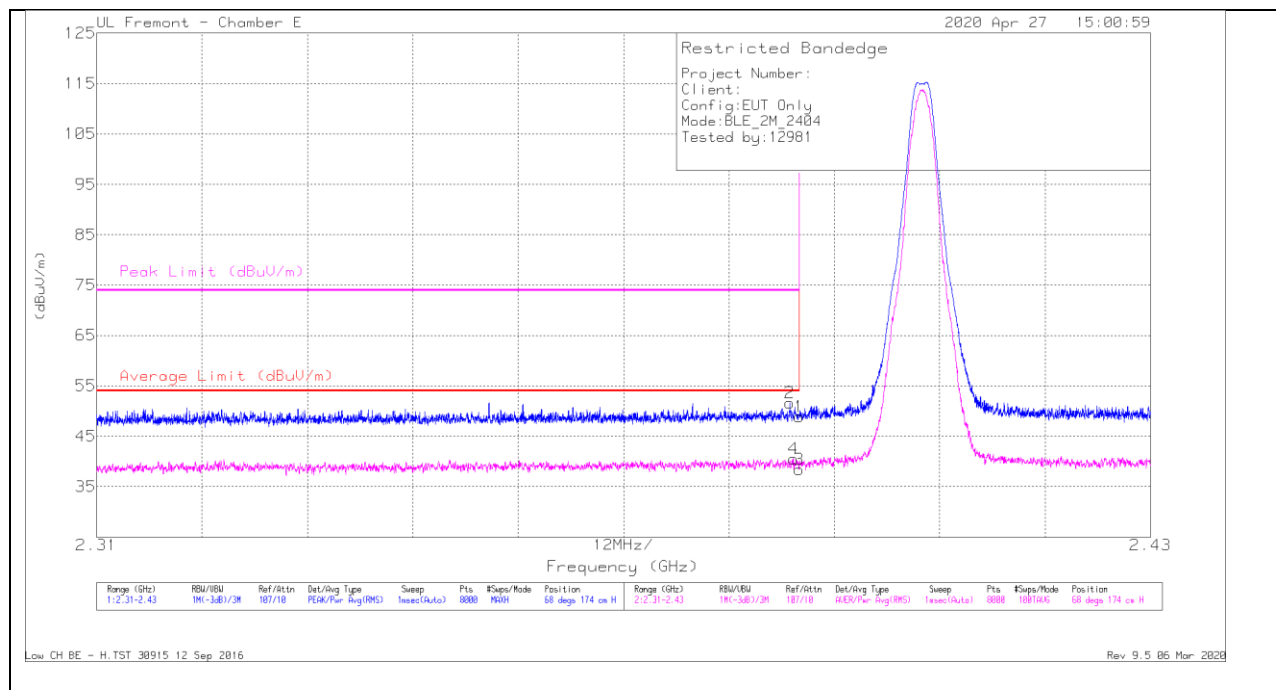
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

10.2.2. BLE (2Mbps)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fitr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	43.04	Pk	32.2	-26.4	48.84	-	-	74	-25.16	68	174	H
2	* 2.38893	45.84	Pk	32.2	-26.4	51.64	-	-	74	-22.36	68	174	H
3	* 2.38999	32.66	RMS	32.2	-26.4	38.46	54	-15.54	-	-	68	174	H
4	* 2.38933	34.74	RMS	32.2	-26.4	40.54	54	-13.46	-	-	68	174	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

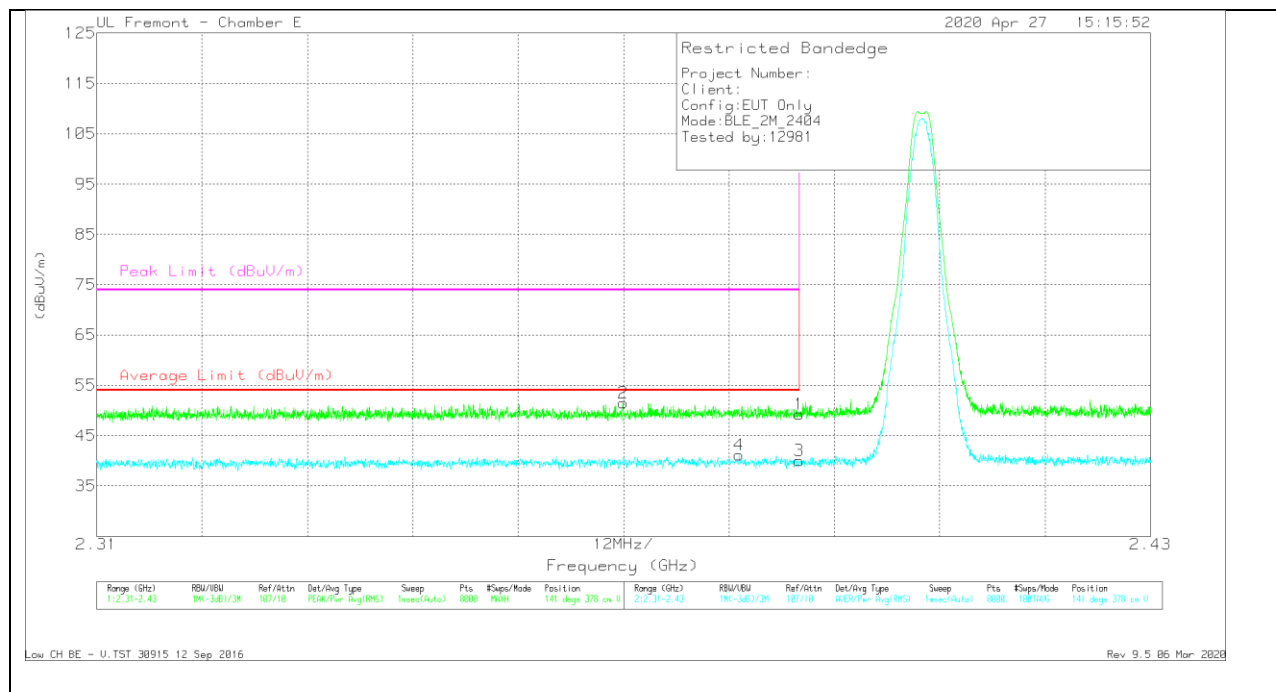
Pk - Peak detector

RMS - RMS detection

Low CH BE - H.TST 30915 12 Sep 2016

Rev 9.5 06 Mar 2020

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cb/Filt/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	43.46	Pk	32.2	-26.4	49.26	-	-	74	-24.74	141	378	V
2	* 2.36993	45.89	Pk	32.1	-26.5	51.49	-	-	74	-22.51	141	378	V
3	* 2.38999	34.22	RMS	32.2	-26.4	40.02	54	-13.98	-	-	141	378	V
4	* 2.38316	35.41	RMS	32.2	-26.5	41.11	54	-12.89	-	-	141	378	V

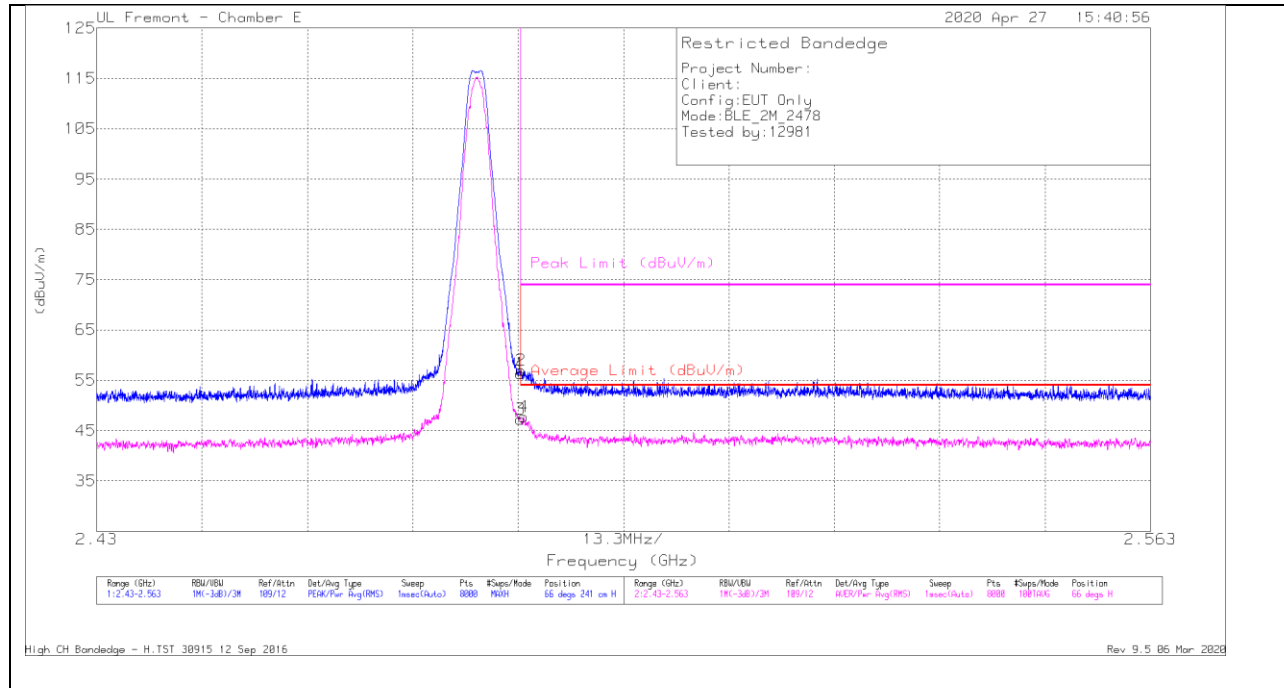
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

Low CH BE - V.TST 30915 12 Sep 2016

Rev 9.5 06 Mar 2020

BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	41.99	Pk	32.8	-18.4	56.39	-	-	74	-17.61	66	241	H
2	* 2.48359	42.54	Pk	32.8	-18.4	56.94	-	-	74	-17.06	66	241	H
3	* 2.48351	32.82	RMS	32.8	-18.4	47.22	54	-6.78	-	-	66	241	H
4	* 2.48385	33.34	RMS	32.8	-18.4	47.74	54	-6.26	-	-	66	241	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

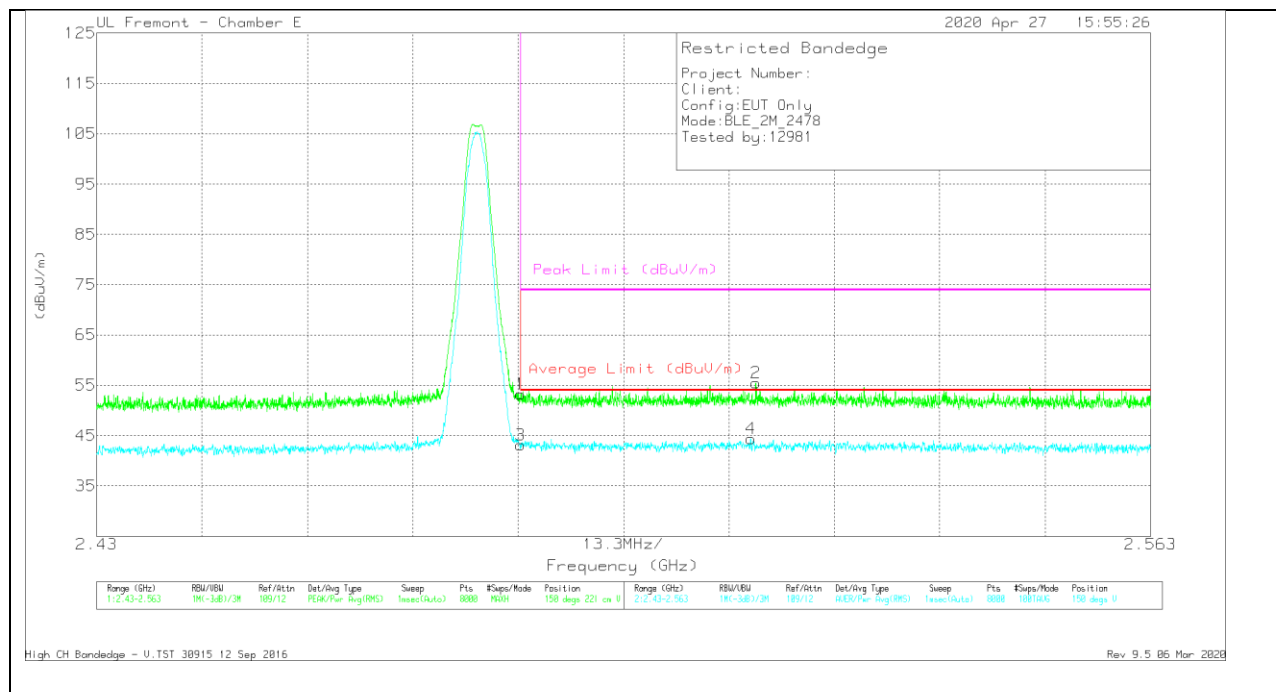
Pk - Peak detector

RMS - RMS detection

High CH Bandedge - H.TST 30915 12 Sep 2016

Rev 9.5 06 Mar 2020

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Ch/Filt/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	38.89	Pk	32.8	-18.4	53.29	-	-	74	-20.71	150	221	V
3	* 2.48351	28.73	RMS	32.8	-18.4	43.13	54	-10.87	-	-	150	221	V
4	2.51255	29.81	RMS	32.9	-18.3	44.41	54	-9.59	-	-	150	221	V
2	2.51318	40.89	Pk	32.9	-18.3	55.49	-	-	74	-18.51	150	221	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

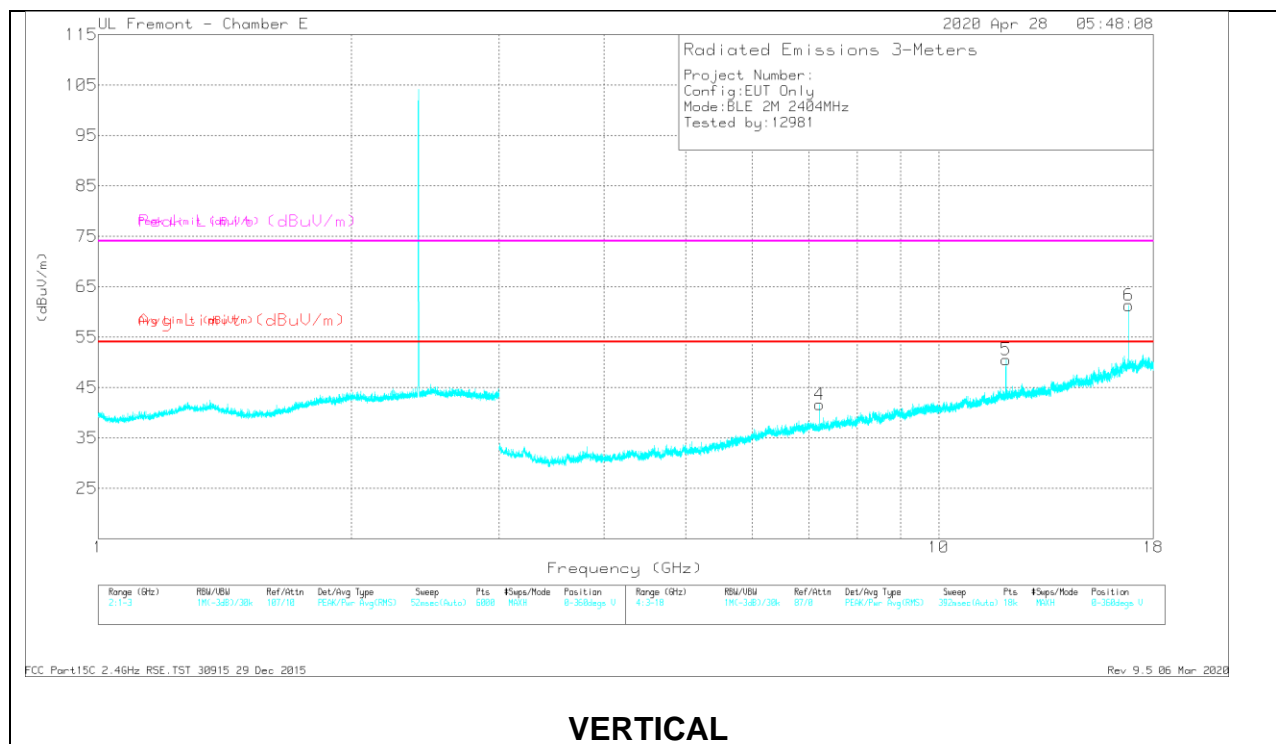
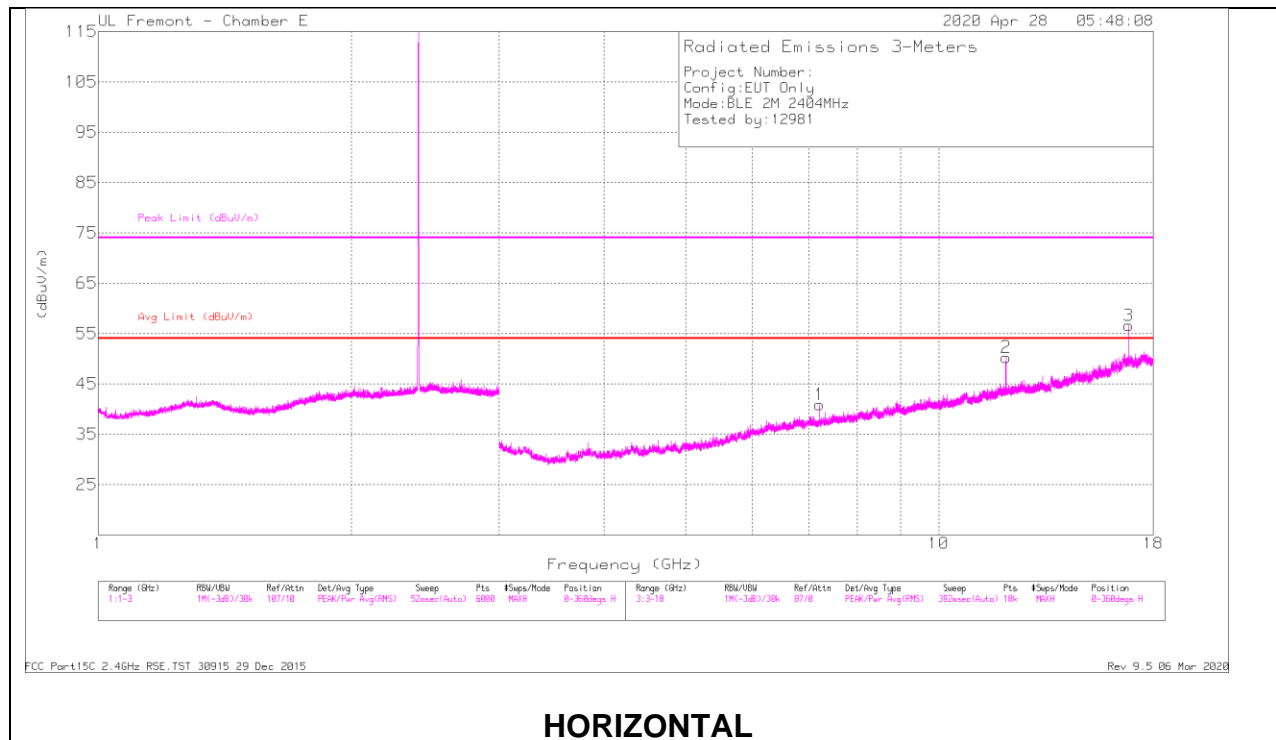
RMS - RMS detection

High CH Bandedge - V.TST 30915 12 Sep 2016

Rev 9.5 06 Mar 2020

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 12.02225	41	PK2	38.7	-23	56.7	-	-	74	-17.3	134	103	H
	* 12.02227	32.29	MAv1	38.7	-23	47.99	54	-6.01	-	-	134	103	H
5	* 12.0223	34.98	PK2	38.6	-23	50.58	-	-	74	-23.42	97	148	V
	* 12.02043	23.83	MAv1	38.6	-23	39.43	54	-14.57	-	-	97	148	V
1	7.21044	40.57	PK2	35.6	-28.5	47.67	-	-	-	-	263	285	H
	7.21064	31.1	MAv1	35.6	-28.5	38.2	-	-	-	-	263	285	H
4	7.21319	32.76	MAv1	35.7	-28.4	40.06	-	-	-	-	265	304	V
	7.21338	42.04	PK2	35.7	-28.4	49.34	-	-	-	-	265	304	V
6	16.82437	43.87	PK2	41.8	-19.6	66.07	-	-	-	-	277	101	V
	16.82453	36.1	MAv1	41.8	-19.6	58.3	-	-	-	-	277	101	V
3	16.83112	28.13	MAv1	41.8	-19.3	50.63	-	-	-	-	265	101	H
	16.83128	40.39	PK2	41.8	-19.3	62.89	-	-	-	-	265	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

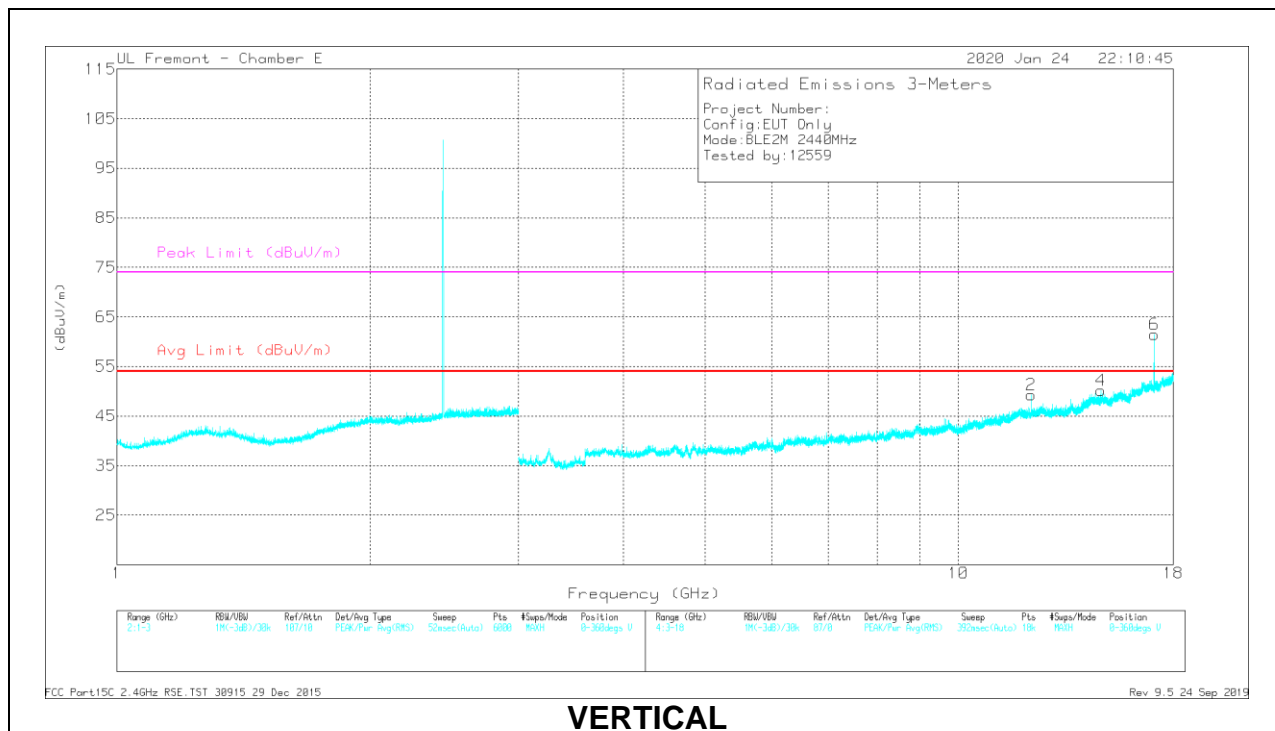
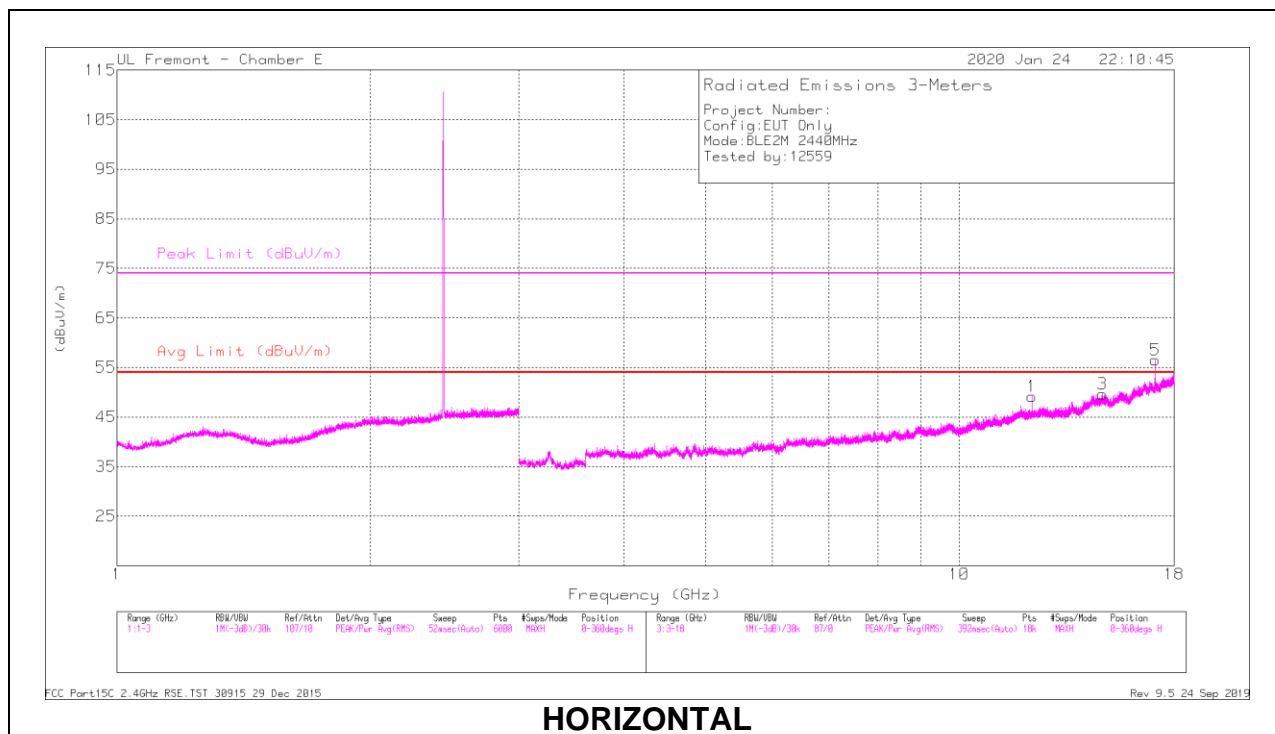
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

FCC Part15C 2.4GHz RSE.TST 30915 29 Dec 2015

Rev 9.5 06 Mar 2020

MID CHANNEL RESULTS



RADIATED EMISSIONS

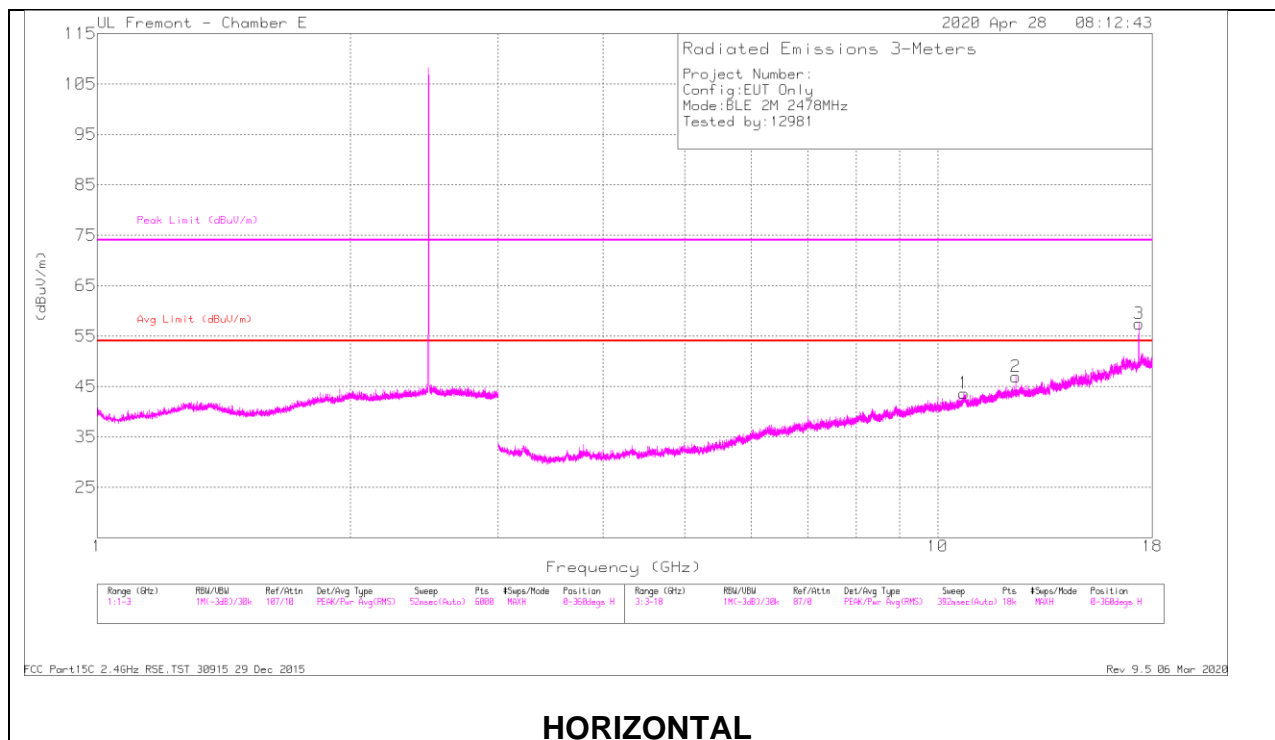
Markers	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 12.20217	38.68	PK2	39	-21.8	55.88	-	-	74	-18.12	277	102	H
	* 12.20221	28.61	MAv1	39	-21.8	45.81	54	-8.19	-	-	277	102	H
2	* 12.20246	38.93	PK2	39	-21.8	56.13	-	-	74	-17.87	336	101	V
	* 12.20215	28.78	MAv1	39	-21.8	45.98	54	-8.02	-	-	336	101	V
4	14.76338	35.53	PK2	40	-20	55.53	-	-	-	-	32	258	V
3	14.79783	36.15	PK2	40	-20	56.15	-	-	-	-	233	196	H
5	17.07602	39.66	PK2	41.4	-18.2	62.86	-	-	-	-	23	196	H
6	17.08331	43.36	PK2	41.4	-18.2	66.56	-	-	-	-	25	101	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

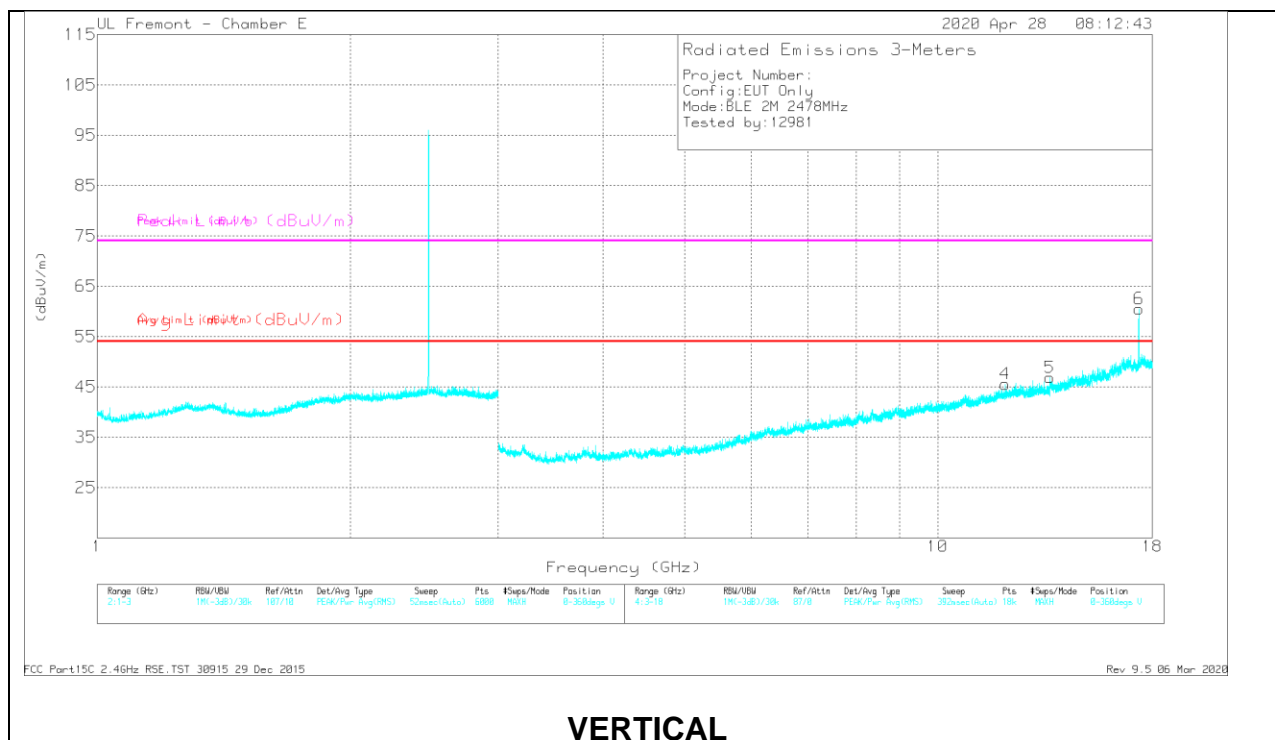
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Market	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 10.74568	37.79	PK2	37.7	-24.7	50.79	-	-	74	-23.21	272	160	H
	* 10.74385	26.05	MAv1	37.7	-24.7	39.05	54	-14.95	-	-	272	160	H
2	* 12.38752	38.46	PK2	38.9	-23.2	54.16	-	-	74	-19.84	339	103	H
	* 12.38755	28.59	MAv1	38.9	-23.2	44.29	54	-9.71	-	-	339	103	H
4	* 12.0305	35.39	PK2	38.7	-23	51.09	-	-	74	-22.91	186	142	V
	* 12.02873	24.4	MAv1	38.7	-23	40.1	54	-13.9	-	-	186	142	V
5	13.60255	36.1	PK2	38.6	-22.1	52.6	-	-	-	-	210	231	V
	13.60195	25.3	MAv1	38.6	-22.1	41.8	-	-	-	-	210	231	V
6	17.34948	43.24	PK2	41.2	-19.4	65.04	-	-	-	-	77	101	V
	17.34924	35	MAv1	41.2	-19.4	56.8	-	-	-	-	77	101	V
3	17.34943	41.36	PK2	41.2	-19.4	63.16	-	-	-	-	173	101	H
	17.34932	32.13	MAv1	41.2	-19.4	53.93	-	-	-	-	173	101	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

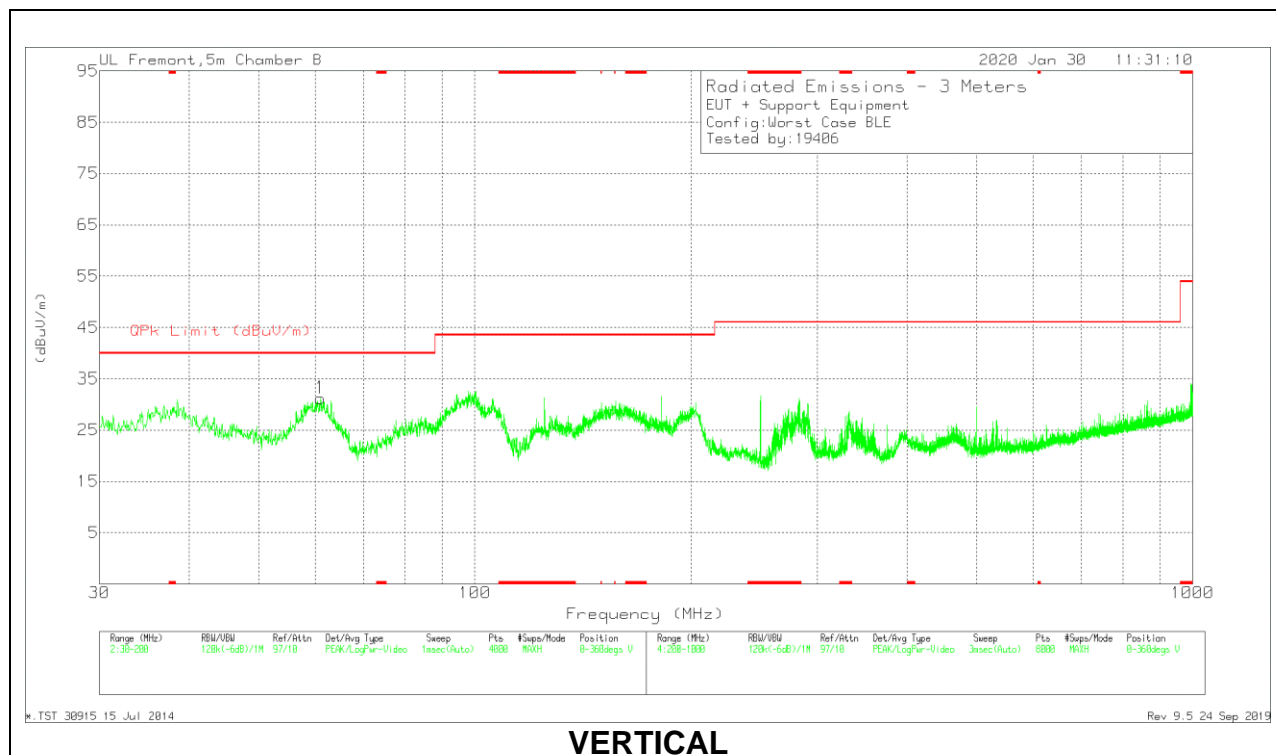
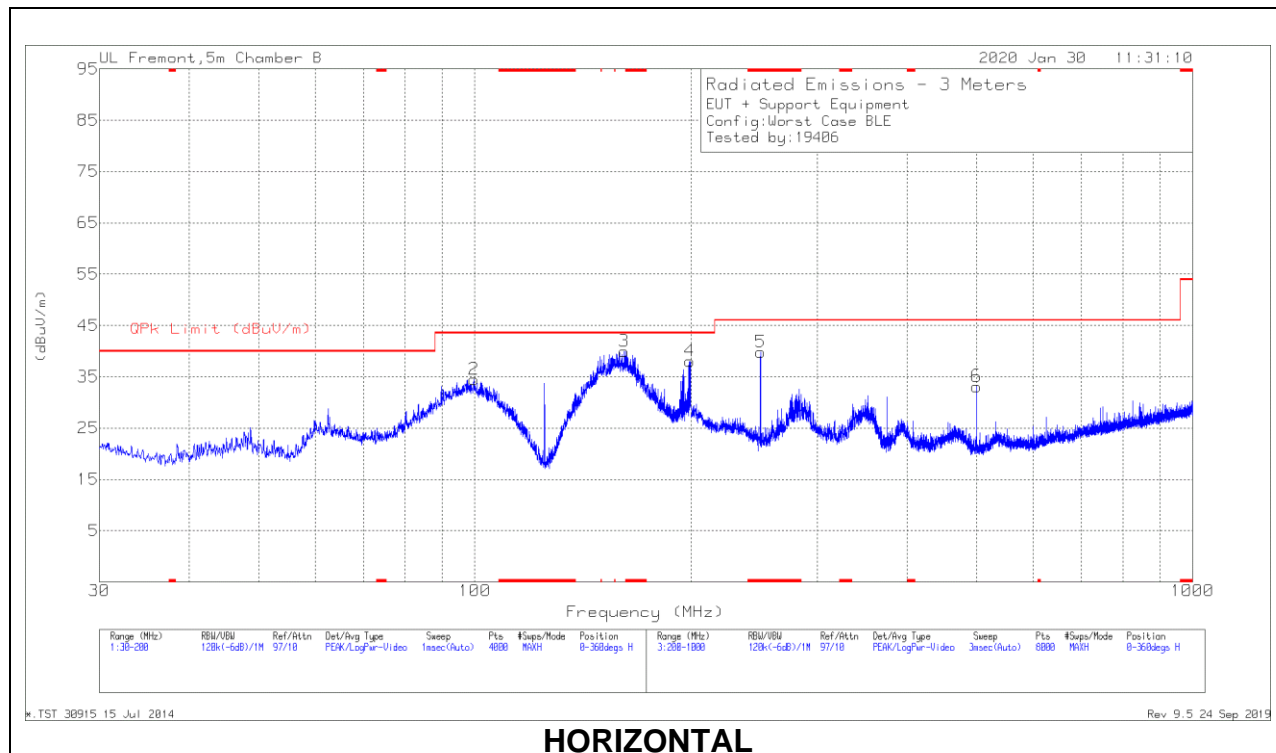
MAv1 - KDB558074 Option 1 Maximum RMS Average

FCC Part15C 2.4GHz RSE.TST 30915 29 Dec 2015

Rev 9.5 06 Mar 2020

10.3. WORST CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)



Below 1GHz Data

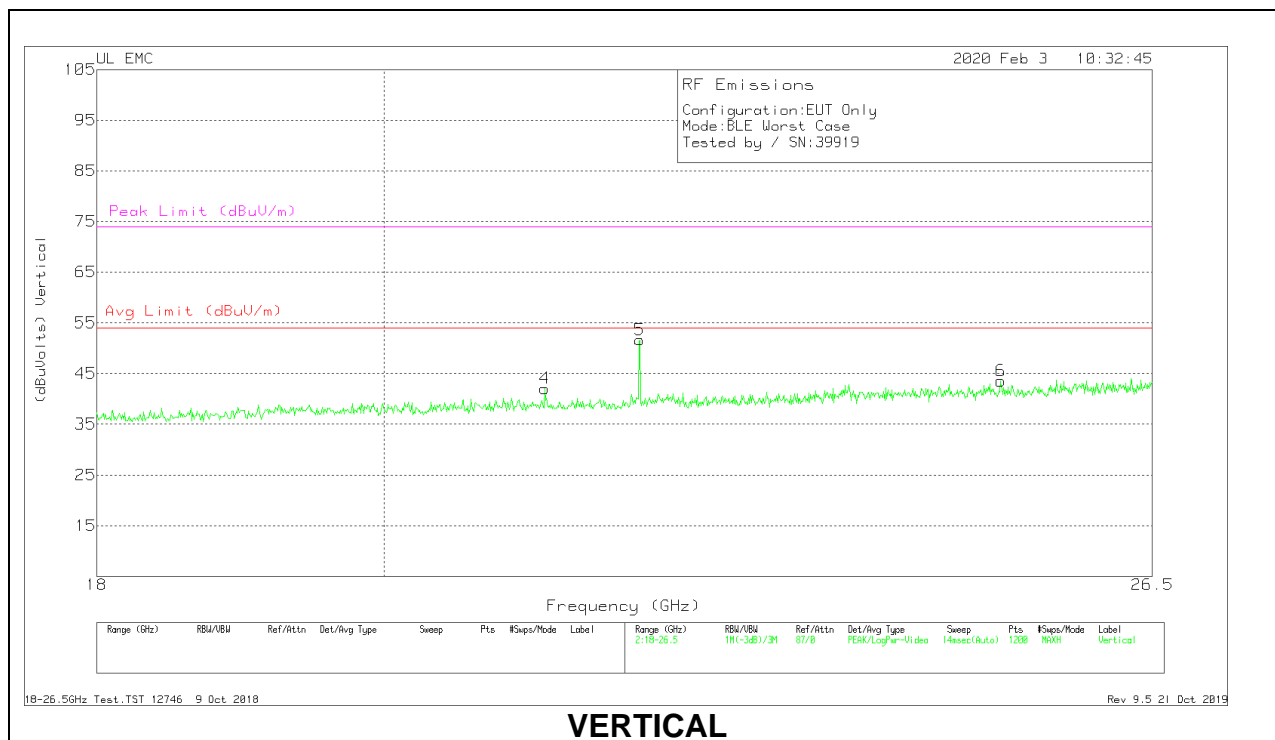
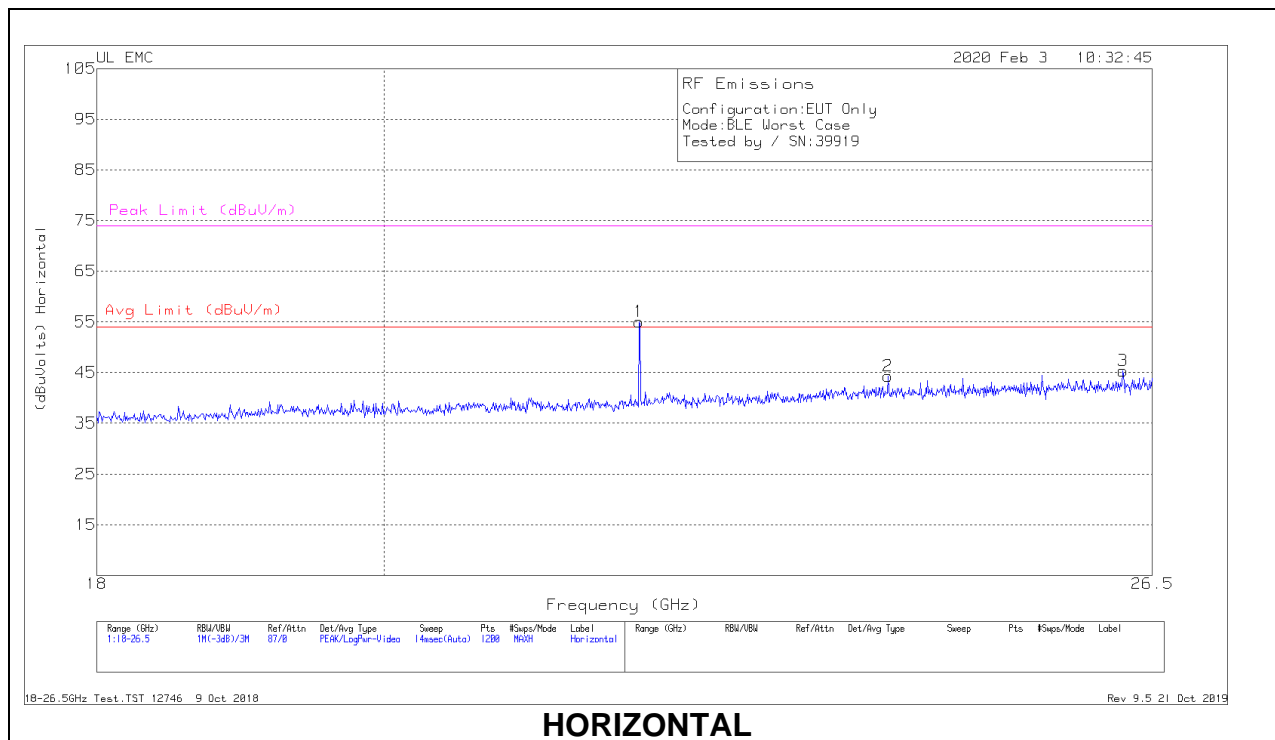
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T408 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 249.9955	54.57	Qp	15.4	-29.8	40.17	46.02	-5.85	139	133	H
1	61.0224	45.97	Qp	11.6	-31.1	26.47	40	-13.53	319	114	V
2	99.6171	46.09	Qp	14.1	-30.7	29.49	43.52	-14.03	353	322	H
3	161.5551	49.46	Qp	16.3	-30.3	35.46	43.52	-8.06	277	228	H
4	199.2239	36.88	Qp	16.8	-30.1	23.58	43.52	-19.94	328	255	H
6	500.004	40.67	Qp	21.6	-29	33.27	46.02	-12.75	109	217	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Qp - Quasi-Peak detector

10.4. WORST CASE ABOVE 18 GHz

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION)



Below 1GHz Data

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T447 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)
1	21.9577	40.93	Av	33.3	-20.8	-9.5	43.93	54	-10.07
2	21.95766	44.86	Av	33.3	-20.8	-9.5	47.86	54	-6.14
3	24.05237	22.16	Av	34.3	-19.5	-9.5	27.46	54	-26.54
4	26.21701	24.28	Av	34.5	-19.9	-9.5	29.38	54	-24.62
5	21.21129	22.43	Av	33	-21.2	-9.5	24.73	54	-29.27
6	25.06745	22.77	Av	34.5	-19.7	-9.5	28.07	54	-25.93

Av - Average detection

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

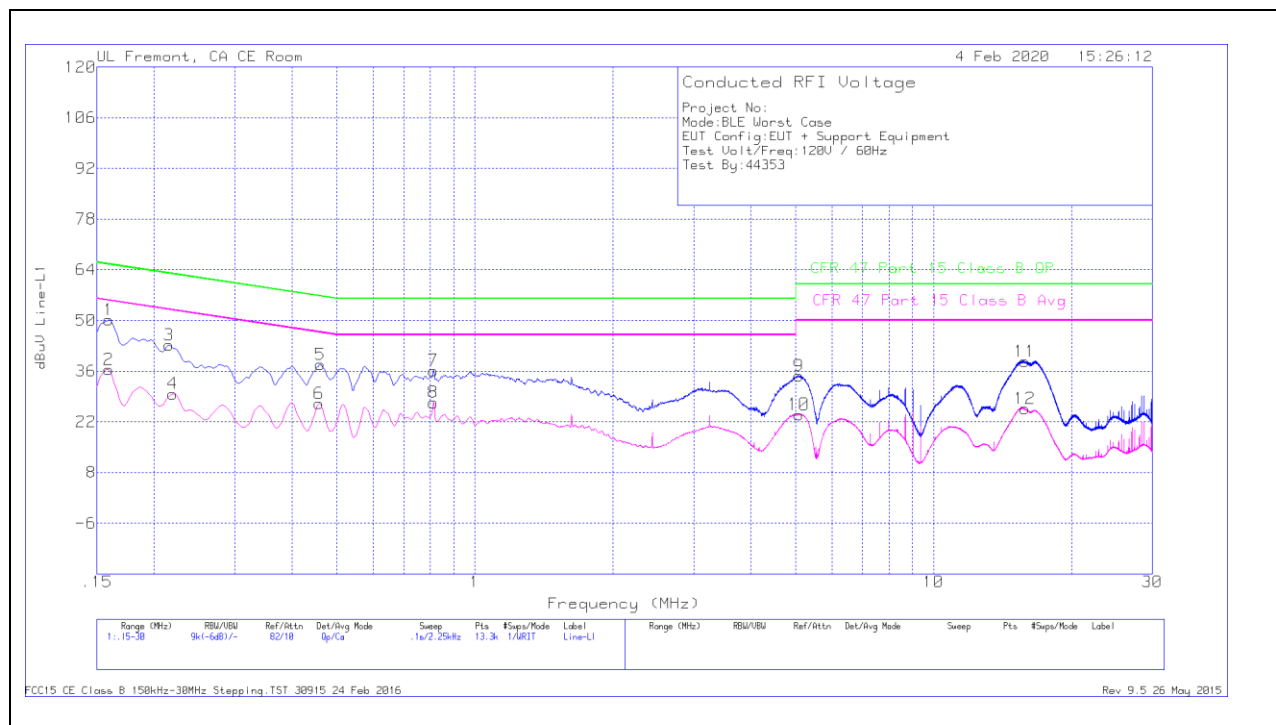
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

11.1.1. AC Line Host

LINE 1 RESULTS

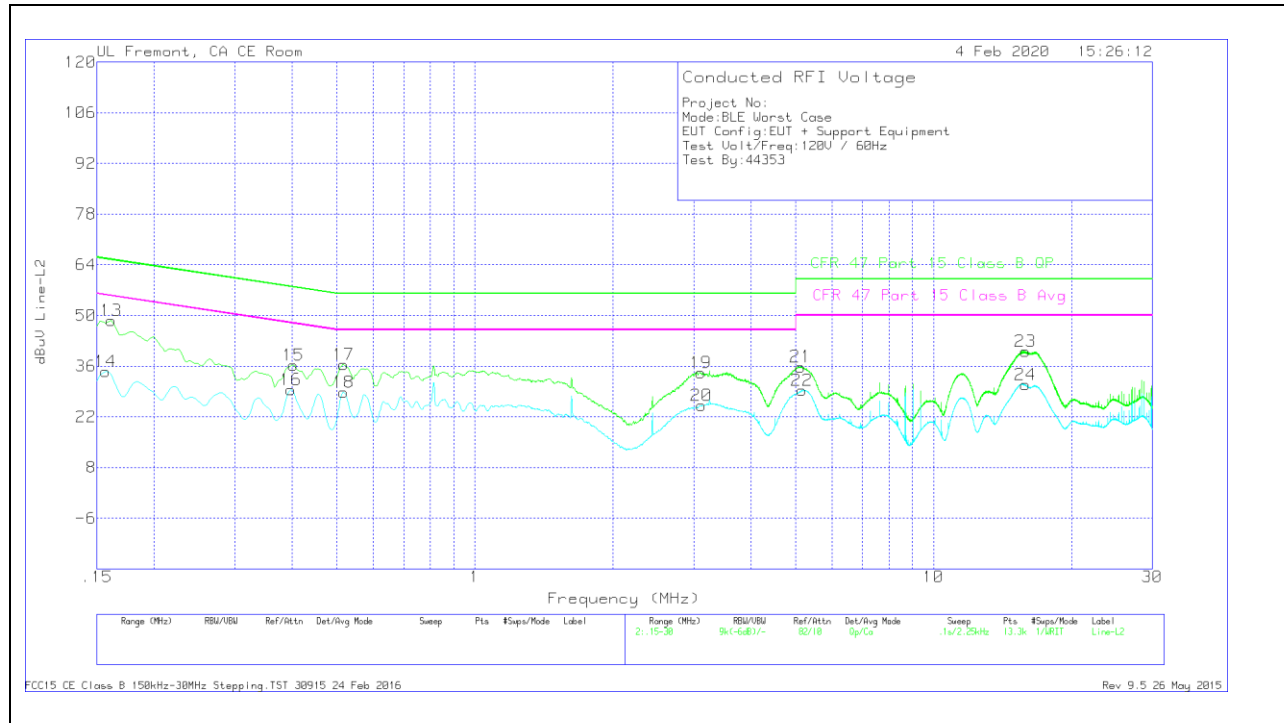


Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1 (dB)	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.159	40.02	Qp	.1	0	10	50.12	65.52	-15.4	-	-
2	.159	26.3	Ca	.1	0	10	36.4	-	-	55.52	-19.12
3	.21525	33.17	Qp	0	0	10	43.17	63	-19.83	-	-
4	.21975	19.75	Ca	0	0	10	29.75	-	-	52.83	-23.08
5	.4605	27.81	Qp	0	0	10	37.81	56.68	-18.87	-	-
6	.45825	17.09	Ca	0	0	10	27.09	-	-	46.72	-19.63
7	.8115	26.18	Qp	0	0	10	36.18	56	-19.82	-	-
8	.8115	17.32	Ca	0	0	10	27.32	-	-	46	-18.68
9	5.08988	24.45	Qp	0	.1	10.1	34.65	60	-25.35	-	-
10	5.08875	13.81	Ca	0	.1	10.1	24.01	-	-	50	-25.99
11	15.81	28.16	Qp	0	.3	10.2	38.66	60	-21.34	-	-
12	15.8055	15.17	Ca	0	.3	10.2	25.67	-	-	50	-24.33

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



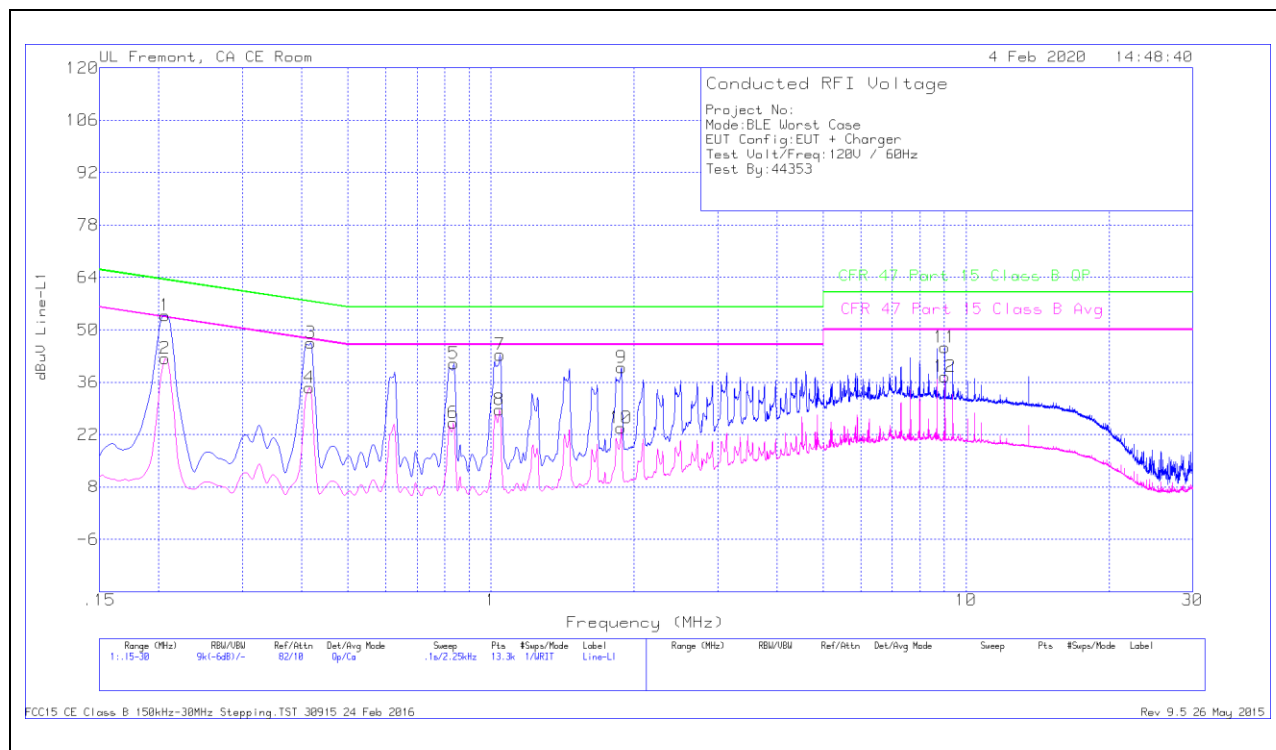
Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2 (dB)	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
13	.16125	38.53	Qp	0	0	10	48.53	65.4	-16.87	-	-
14	.15675	24.38	Ca	.1	0	10	34.48	-	-	55.63	-21.15
15	.402	26.25	Qp	0	0	10	36.25	57.81	-21.56	-	-
16	.3975	19.54	Ca	0	0	10	29.54	-	-	47.91	-18.37
17	.51675	26.43	Qp	0	0	10	36.43	56	-19.57	-	-
18	.51675	18.82	Ca	0	0	10	28.82	-	-	46	-17.18
19	3.10875	24.13	Qp	0	.1	10	34.23	56	-21.77	-	-
20	3.12225	15.04	Ca	0	.1	10	25.14	-	-	46	-20.86
21	5.13825	25.63	Qp	0	.1	10.1	35.83	60	-24.17	-	-
22	5.16075	19.07	Ca	0	.1	10.1	29.27	-	-	50	-20.73
23	15.85275	29.56	Qp	0	.3	10.2	40.06	60	-19.94	-	-
24	15.85388	20.32	Ca	0	.3	10.2	30.82	-	-	50	-19.18

Qp - Quasi-Peak detector

Ca - CISPR average detection

11.1.2. AC Line Norm

LINE 1 RESULTS

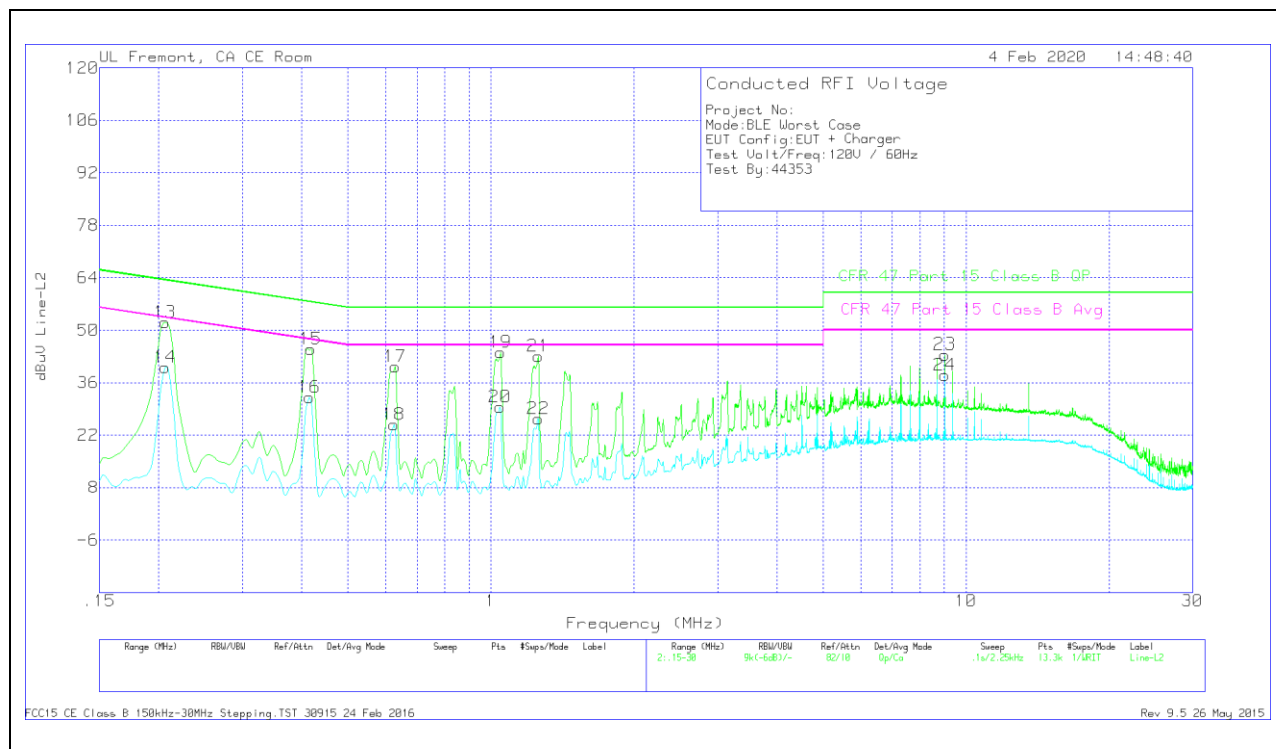


Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1 (dB)	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
1	.20625	43.89	Qp	0	0	10	53.89	63.35	-9.46	-	-
2	.20625	32.38	Ca	0	0	10	42.38	-	-	53.35	-10.97
3	.41775	36.59	Qp	0	0	10	46.59	57.49	-10.9	-	-
4	.4155	24.56	Ca	0	0	10	34.56	-	-	47.54	-12.98
5	.83625	30.98	Qp	0	0	10	40.98	56	-15.02	-	-
6	.834	15.09	Ca	0	0	10	25.09	-	-	46	-20.91
7	1.0455	33.21	Qp	0	.1	10	43.31	56	-12.69	-	-
8	1.04325	18.53	Ca	0	.1	10	28.63	-	-	46	-17.37
9	1.8825	29.85	Qp	0	.1	10	39.95	56	-16.05	-	-
10	1.88025	13.73	Ca	0	.1	10	23.83	-	-	46	-22.17
11	9.033	35.02	Qp	0	.2	10.1	45.32	60	-14.68	-	-
12	9.033	27.12	Ca	0	.2	10.1	37.42	-	-	50	-12.58

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2 (dB)	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)Margin (dB)
13	.20625	42.04	Qp	0	0	10	52.04	63.35	-11.31	-	-
14	.20625	30.14	Ca	0	0	10	40.14	-	-	53.35	-13.21
15	.41775	34.94	Qp	0	0	10	44.94	57.49	-12.55	-	-
16	.4155	22.1	Ca	0	0	10	32.1	-	-	47.54	-15.44
17	.62925	30.33	Qp	0	0	10	40.33	56	-15.67	-	-
18	.62475	14.75	Ca	0	0	10	24.75	-	-	46	-21.25
19	1.04775	34.05	Qp	0	.1	10	44.15	56	-11.85	-	-
20	1.0455	19.34	Ca	0	.1	10	29.44	-	-	46	-16.56
21	1.257	32.9	Qp	0	.1	10	43	56	-13	-	-
22	1.257	16.25	Ca	0	.1	10	26.35	-	-	46	-19.65
23	9.03075	33.18	Qp	0	.2	10.1	43.48	60	-16.52	-	-
24	9.03075	27.74	Ca	0	.2	10.1	38.04	-	-	50	-11.96

Qp - Quasi-Peak detector
Ca - CISPR average detection

12. SETUP PHOTOS

Please refer to 13019133-EP1V1 FCC IC Setup Photos for setup photos

END OF TEST REPORT